Railway Age

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Table of Contents Appears on Page 5 of Advertising Section

Tool Foremen's Good Work on Standardization

THE statement is occasionally heard that railroad mechanical men cannot agree, taking the country as a whole, about the best method of doing any particular job or the best tools to use for that work, and that it is impossible therefore to secure a general use of the best tools and methods. This statement has been unmistakably refuted in more than one instance, the latest example being that of the American Railway Tool Foremen's Association which last year adopted standard locomotive taper and rod reamers and, after exhaustive discussion and argument in convention this year, agreed on a much more difficult subject, namely, that of standard and special boiler taps. The general tap designs, form of thread and number of threads per inch, in a limited number of sizes, were specified and the association voted to recommend them for formal adoption by the A. R. A., Mechanical Division. The advantages to be gained may be summarized roughly as (1) the provision of tools better suited to railroad needs, (2) fewer tools necessary to be carried in stock at each repair point, (3) cheaper tools owing to the fact that manufacturers can concentrate on a fraction of the multitudinous types and sizes of tools now in use, and install production methods. The American Railway Tool Foremen's Association put on the best balanced and most progressive convention program of recent years at Chicago last week. For this work and what it plans to do in the further standardizing of small tools, the association should receive the hearty support of higher railroad officers.

The Public Is Interested in Motor Transport

ONE thing at least is being proved by the Interstate Commerce Commission's motor transport investigation. It is that the public is interested in the motor transport question. Proof of this is to be had in the amount of space in their columns that newspapers in cities where the hearings are being held have given the testimony. This reflects an already substantial public interest and arouses an even greater public interest. It seems regrettable that the railways have not adopted measures to have their points of view adequately presented to the public. Public opinion on the necessity for regulation of highway carriers is being formed by the reports of the hearings that the newspapers are printing, reports which do not themselves state the railways' case because the railways have not themselves stated any case. Were it not for the active participation of the electric railways at the hearings, they would have become mere gatherings for the singing of hymns of praise to the bus and the truck and for the reciting of dire warnings against the throttling of the highway transportation infant by regulation. If the railways sincerely believe that buses and trucks should be regulated—and judging from past complaints of lack of regulation, they do so believe—they should have grasped the opportunity afforded at the commission's hearings to get their contentions across to the commission and to the public. There is reason for expecting that the eastern lines will take a more active part in the hearings, not relying, as the western lines have, merely on their replies to the commission's questionnaire to state their case. If this expectation becomes a reality, some of the influence on public opinion of the unanswered arguments of bus and truck witnesses against regulation may be overcome.

Another Chance for Western Railways

THE western trunk lines will soon have another opportunity to prove that their lack of adequate net earnings has been caused by the unduly low level of rates that they secure on the freight that they handle. The approaching hearings before the Interstate Commerce Commission at Chicago on the application of the railways in western trunk line territory for increases in class rates will be important to them and to the welfare of the railways in the United States as a whole. The spottiest place in the railway financial map in recent years has been the western trunk line territory. The Interstate Commerce Commission itself recognized this by separating the class rate increase petition of the western trunk lines from the case for a five per cent general rate increase for all the western lines which it denied two months ago. In the decision in that case the commission said that from a revenue standpoint the western trunk lines were at a greater disadvantage than the lines in any other part of the country. Some criticism of the manner in which the railways presented their case in asking for the five per cent general rate increase was voiced by an organization of western railway security holders. While this criticism was not justifiable, the fact of greatest importance now is that another opportunity is being afforded the western trunk lines to prove that they cannot make a living under existing rates. To the western trunk lines the present application is of great moment. A five per cent increase in the freight revenues of the Class 1 carriers in the western district in 1925, would have swelled the revenues of all of the lines in the west some $80,000,000, while the proposed increase in class rates would benefit the trunk line carriers alone by more than $11,500,000. The attitude of the commission in its recent decision seems to indicate that some relief may be expected for them.

Railroad Competition

ONE important assumption on which our policy of government regulation is based is that the railways are monopolistic, or at least quasi-monopolistic, in their nature. Facts constantly arise to confute this theory. There is active competition between them not only in the rendering of service but even in the making of rates. On the whole this competition is helpful and beneficial to both the railways and the public. Nothing could be worse than the complete elimination of competition.

There are, however, various forms competition takes which, as virtually all railway officers agree, are harmful to both the railways and the public. The door through which most of the abuses in the railroad business always have got in and still get in is that of competition for traffic. These abuses are by no means as serious and harmful as formerly, but they are still in evidence. Railway officers admit this and find fault with each other for them, but the spirit of competition is still so much stronger than that of co-operation that abuses still continue which cost the railways or the public or both a good deal.

It would appear that many of the things alluded to might be avoided if the management of each railway would follow the rule of not initiating anything which, if done by all competing lines, would soon be injurious to all of them, including the initiating line. Experience has shown that practically every move made by an individual line to get traffic away from its competitors will result promptly in counter moves by them, and yet the game of competition continues to be played largely in disregard of this experience.

It happens over and over again at the very time when groups of railways are trying to get advances in rates that there prevails in their territory a generally downward trend of rates. This is due to "readjustments" that are constantly being made. Some of these are made by regulating authorities to remove alleged discriminations. Many of them, however, are made by the railways themselves. One of the remarkable facts about the railroad business is that regulating authorities and railway officers so seldom find it possible to change the relationship between two or more rates in any way except by reducing the higher rate. Individual railways make downward readjustments to placate shippers on their lines or in the hope of getting more traffic. Competing railways promptly meet this move to placate their shippers or hold what they regard as their share of the traffic. The result is a reduction of the earnings of all the railways affected.

The influence of the big shipper is still great, although not so powerful as formerly. Railway experts can still go through the tariffs of even the western lines and find rates upon commodities produced and shipped by large concerns that are relatively much too low compared with the general level of rates. The usual explanation is that some big shipper or group of big shippers has succeeded in getting some individual line to make these rates, that other railways have met them, and that they remain in effect year after year because the same competition that unduly depressed them prevents them from being reasonably advanced.

To the undue influence of competition must be attributed certain extravagances in passenger service which may not cost a great amount but which, nevertheless, are wasteful and inconsistent. For example, there are trains which leave two large mid-western cities about midnight each night and arrive at their destination at about seven o'clock in the morning. Each of these trains includes a combination lounge-dining car. Practically nobody desires to lounge or dine between midnight and seven o'clock in the morning. The operation of these cars is of virtually no benefit to the public, but in the aggregate it costs a good deal of money which could be better saved by the railways or spent to make some real improvements in the service to the public.

Reference has been made in these columns on some recent occasions to the use of railway purchases to get traffic from large shippers. It may be that, quality and prices being equal, a railway is justified as a business matter in favoring a large shipper in making purchases, although this may be questioned upon the ground that it tends in the long run to reduce competition in the market in which the railways buy. If quality and price are not equal the use of purchases to get traffic is a competitive expedient which tends in the long run to injure all railways and benefit none of them.

The future of the railways as a whole and even of individual lines will depend only to a limited extent on the success of their purely competitive activities to get traffic away from each other. It will depend much more upon the creation of new traffic, real improvements in service and the maintenance of an adequate general level of rates. Competition that results in service frills that are of no real value to railway patrons, that increases the cost of supplies, or that drags down the general level of rates unduly is, in the long run, harmful to both the railways and the public.

Railway Accidents Decline—Crossing Accidents Increase

OF all the efforts that the railway managements have made year after year to increase efficiency of operation, none have been more energetic and fruitful than those to reduce accidents. Since, of course, accidents tend to increase with volume of traffic, number of employees and train service rendered, it is especially significant that fatal accidents to all classes of persons declined in the first five months of 1926, as is shown by statistics of the Interstate Commerce Commission recently issued, excepting those to persons crossing railways at highway crossings. The increase in the number of this class is significant because the railways have little or no control over their conduct.

The increase in the amount of train service rendered is indicated by the fact that in the first five months of last year locomotives were run about 704 million miles and in the first five months of 1926 about 734 million miles. The number of persons employed showed an average increase of 22,343. The number of passengers killed declined from 52 to 41. The number of employees killed on duty declined from 628 to 619. The number of all persons killed who did not meet their deaths at highway crossings, including trespassers declined from 1,788 to 1,678. On the other hand, the number killed at highway crossings increased from 771 to 859, or about 11½ per cent. The railways every year, at a very high cost, eliminate a large number of highway crossings, but usually state and local authorities open more new highway crossings than are eliminated. The elimination of all highway crossings is a financial impossibility because it would require a capital investment almost as great as the total existing investment in the railways, on which the public would have to pay freight and passenger rates that would yield a return.

There are two practical means of substantially reducing highway crossing accidents. One of these is to educate the public, and especially the drivers of auto-

mobiles, regarding the hazards incurred in crossing railway tracks without taking adequate precautions to make sure that trains are not coming. The railways collectively and individually are constantly carrying on campaigns for this purpose, but while the problem presented is chiefly a public and not a railroad problem, they receive comparatively little help from government authorities. The second means available is that of passing and enforcing strict laws requiring every pedestrian or driver of a vehicle to "stop, look and listen" before crossing railway tracks. In some states there are such laws; in others there are not; and in states where they have been passed they usually are poorly enforced. Innumerable laws for the regulation of railways are passed, but the facts regarding railway accidents seem to indicate that railway managements are more anxious to promote the safety of the public than are government authorities and the public itself.

An Investment That Is Thrown Away

NO one will contend that an experienced employee is not more valuable than one without experience, Yet the season is approaching when the railways will lay off about 100,000 employees who have been in their service during the last four to six months, and abandon the investment that they have made in the training of this army of men.

One secret of the success of modern industry is the high degree of specialized training given employees whereby each becomes highly proficient in the performance of the duties assigned to him. The railways have been slow to recognize the value of this policy in the maintenance of way department, having been disposed to be content with "jacks of all trades who are proficient in none." In fact, the plan under which the railways have concentrated most of their maintenance of way work in a portion of the year has encouraged the development of this type of man.

Take the laying of rail as an illustration. It is commonly necessary to relay some rail on every division. Owing to the high degree of concentration of authority in the divisional staffs on many roads, this has led to the conduct of rail laying operations on each division independent of others, with resulting duplication of gangs, shortened employment, etc. As a remedy for this situation some roads are now approaching the problem from a system standpoint, disregarding divisional lines. This permits the entire rail renewal program to be planned with a view to the most efficient organization of a smaller number of gangs, the supplying of these forces with adequate equipment and the training of each man in his specific duties. Such a plan offers more permanent employment, thereby attracting more efficient men.

While this program is an improvement over that more commonly followed, it still contemplates the laying off of the system gangs and the destruction of their organization at the termination of the work in the fall. To eliminate this loss the practice is growing rapidly of doing more work in the winter and thus retaining the organization intact. On one or two roads with both northern and southern lines gangs are employed in laying rail throughout the entire year, moving south in the fall and returning north in the spring. Another plan which is in effect on several roads and is more generally applicable is to organize gangs for the laying of rail during the winter, transferring them to ballasting operations during the summer.

A still further development that is making rapid progress is the laying of rail and the handling of considerable other maintenance work by the regular section forces, combining gangs where necessary. This not only provides constructive employment for forces which would otherwise be engaged in "chasing snowflakes" or similarly unproductive work for a large part of the winter but, more important, completes this work during what is otherwise the dull season and reduces the amount of work remaining to be done in the summer. This in turn makes it possible to employ and to train a smaller number of men in the spring and affords the advantage of a more permanent and experienced force throughout the year.

While the time has perhaps not yet arrived when the railways throughout the country will be warranted in maintaining an entirely uniform maintenance of way force throughout the year, they are warranted in going further in this direction than they have as yet. At this season of the year when the time for the usual curtailment of forces is approaching, maintenance officers and the executives to whom they report can afford to give serious consideration to the possibility of handling more work during the winter, with the objective of reducing the waste that now results each year from the recruiting of large numbers of inexperienced men in the spring and their discharge in the fall.

A Field for Improvement

THE history of locomotive development on American railroads has demonstrated that one motive has been paramount in bringing about the general acceptance of innovations in design or additions of improved special equipment; that is, the desire for additional capacity per power unit. At one time additional capacity meant little more than an increase in tractive force, making possible an increase in dead haul tonnage rating. Later, as more attention was given to the development of the so-called economy and capacity increasing devices, there gradually developed a realization of the fact that increased capacity might also be measured by the ability to haul a given train faster. The fact that these devices made the locomotive a more efficient power plant and thereby a more economical user of fuel, had, however, far less force in effecting their ultimate acceptance than the increase in capacity which they made possible and, as the result of which, the unit cost of crew wages was materially reduced and the capacity of other facilities materially increased.

The demand for increased capacity is, of course, greatest when the volume of traffic to be handled is growing most rapidly. There have now been several years during which no marked increases in the volume of traffic have developed, and a shift in the emphasis as between capacity and economy is beginning which, although it has not and probably will not place the demand for capacity in the background, has increased the consideration which has been given to locomotive operating economies as ends desirable in themselves. The intensive study which has been devoted to the problem of increased locomotive utilization has been instrumental in focusing attention on the possibilities for greater operatng economy which the improved modern power plant on wheels opens up to the railroads.

There is no lack of opportunity for improvements in both economy and capacity through the utilization of better motive power. It is perhaps a little surprising to find that almost 40 per cent of the locomotives assigned to freight service during the past year are of the Con-

solidation type. A few railroads still order locomotives of this type. With these few exceptions, the number of Consolidation type locomotives for which orders have been placed during the past ten years is relatively insignificant, and a large percentage of the locomotives of this type now in service must be considered far from modern in design. Some of them, no doubt, may have been modernized by the addition of certain economy and capacity-increasing devices, but they are still left with the deficient boiler capacity, characteristic of the locomotives of this type built when this was the prevailing type for freight service. After allowing for the fact that many of these locomotives are in service on light branch lines where the limited opportunity for effective utilization would make inadvisable the investment in better motive power, the number of these old locomotives, not to mention the older locomotives of other types lacking both in efficiency and horsepower capacity, still in main line freight service, offers a large field for further improvements in operating economies through the replacement of inefficient motive power with modern traveling power plants, developing high horsepower capacity and high operating economy.

New Books

The New Leadership in Industry. By Sam A. Lewisohn, vice-president, Miami Copper Company, and chairman of the board of the American Management Association. Bound in cloth, 229 pages, 5¼ in. by 7¾ in. Published by E. P. Dutton & Co., New York.

Mr. Lewisohn is noted in the industrial world for his breadth of view and his clear and straight thinking on problems affecting industrial relationships. In discussing the difficulty of labor relations, Mr. Lewisohn does not hesitate to place the responsibility where it belongs. The real difficulty, he says, has been one of neglect. Executives have treated the question of human organization as a minor matter, not as a major problem. Relations between employers and employees have been, to too great an extent, a football of our emotions and there is a need for the application to the problem of sound reason and common sense. Special attention is also directed to misconceptions concerning capitalism, and it is pointed out that the labor problem would exist in its essentials whether we have capitalism or some other economic system.

In discussing the training and development of leadership and the education of the manager, Mr. Lewisohn indicates that trained technical engineers are being more and more used as industrial executives. It is of special importance, therefore, that more attention be given in our engineering courses to management and human relations. Even if special pains are given to educating men for positions of leadership, however, it will still be necessary for them to continue their education in industrial relationships while on the job. So great, indeed, does Mr. Lewisohn consider the importance of industry to the country at large that he suggests that, "continuous education of production managers to handle labor relations properly should be a general national educational policy." Suggestions are also made as to several agencies which may prove helpful for the education of the executive.

One chapter of the book discusses employee representation as an aid to management. The basic principle of the broader type of employee representation is consultation, and the advantages of employee representation on this basis are clearly outlined. Another chapter, in discussing The Harmonizing of Unionism and Industrial Effectiveness discusses the advantages and limitations of labor unions. Modern wage policies also naturally come in for considerable discussion under the headings of the living wage and the national income, are real wages affected by national productivity, wage policies and productivity, wage policies during depressions, and the significance of wage policies to the employers.

An attempt is made to define the new leadership in the final chapter. It is first pointed out that the more important desires of the workman in a large way are desire for justice, desire for status and desire to have his job made a career. To satisfy these, suggestions are made as to a personnel department, general efficiency and industrial peace, and a rounded-out policy. The real difficulty to progress in improving human relations has been neglect or a failure on the part of the executives to appreciate the importance of human relations in industry. "Producing a healthy human organization within industry is dependent upon no simple panacea," says Mr. Lewisohn. "Like health in real life, a continued daily regime suited to the needs of the particular individual is what counts in the long run. With the adoption of scientific personnel methods and an interest in management technique, controversial aspects assume their correct place in the perspective. Production executives become organization conscious, instead of class conscious."

Mr. Lewisohn's arguments are much more simply and clearly expressed than is true of most of the treatises on the questions of management and human relations in industry. The book will stimulate thinking and be helpful to anyone interested in these questions. Footnotes and references will also help to direct further study.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Agriculture Yearbook 1925, compiled by U. S. Dept. of Agriculture. The fifth and last of a series dealing primarily with economic aspects of agriculture, and featuring the fruit and vegetable industry. "Transportation by rail," p. 683-690, and "Water transportation" including Panama Canal, p. 691. 1537 p. Pub. by Govt. Print. Off., Washington, D. C., $1.50.

The Cost of Living in the United States 1914-1926, by National Industrial Conference Board. 233 p. Pub. by Natl. Indus. Conf. Board, Inc., New York City, $2.50.

The Traffic Problem—A Study Made in Albany, N. Y. A study made possible by co-operation of several agencies and containing suggestions for traffic study methods in other cities. 48 p. Pub. by New York State Conference of Mayors and Other Municipal Authorities, and Policyholders' Service Bureau, Metropolitan Life Insurance Co., New York City.

Periodical Articles

Bus or Train—Or Both? by John C. Emery. On the extent to which railroads have adopted the use of motor buses, and the reasons why in various communities. American Review of Reviews, September, 1926, p. 285-292.

Equipment for Operating Railroad Turntables, by H. H. Vernon. Illustrated. General Electric Review, September, 1926.

France Rebuilds, by B. S. Townroe. An illustrated account of the garden cities constructed by the Northern Railway of France for its employees to replace communities destroyed in the Great War. American Review of Reviews, September, 1926.

Government Grows and Grows! by William R. Wood. On the independent burcaus, including the Interstate Commerce Commission, the growth of which, from 1890, is presented in a statistical table on page 17, col. 3. Nation's Business, September, 1926.

A Large Part of the Fill Was Made of Blast Furnace Slag. Note the Riprap Wall Along the River Bank

Grade Crossing Problem Solved by Building New Line

Pennsylvania constructs 3½-mile diversion at New Brighton, Pa., which also increases track capacity

ON June 15 the officers of the Pennsylvania joined with the citizens of New Brighton, Pa., and Beaver Falls in a celebration to mark the completion of a seven million dollar project which affords the solution of what has long been a perplexing grade

Looking South from the Jump-Over, Low Level P. Y. & A. Tracks in the Center, Fort Wayne Tracks on Either Side

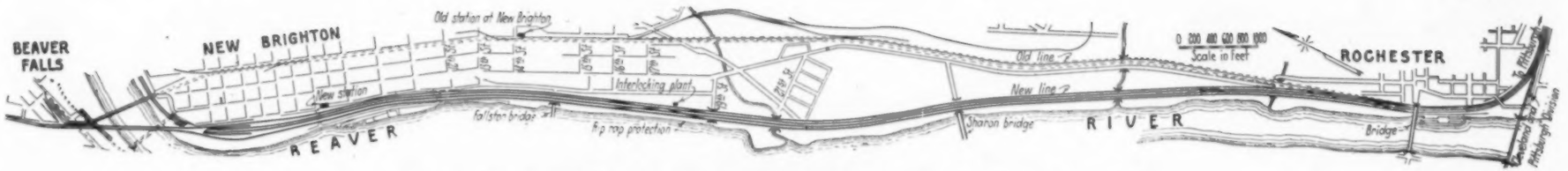
crossing problem. In addition, it provides the railroad with a new four-track line for a distance of 3½ miles with ample right-of-way for the addition of two more main tracks, whereas its old line through New Brighton had only two tracks in the center of one of the borough streets where it was impossible to make any increase in trackage. This project also includes a 1½ mile, low-grade, double track extension of the Pittsburgh, Youngstown and Ashtabula line along the left bank of the Beaver river and comprises an important step in a program for a general improvement designed to increase the capacity of the main line between Pittsburgh and Chicago, and to the lake ports.

The new line is entirely on an embankment from 20 to 30 ft. high; the project required the acquisition of a new right-of-way, included in which were considerable areas of improved city property; it entailed the laying of several miles of street pavement under the terms of an agreement with the local authorities, and in addition, included a new double-track bridge across the Beaver river.

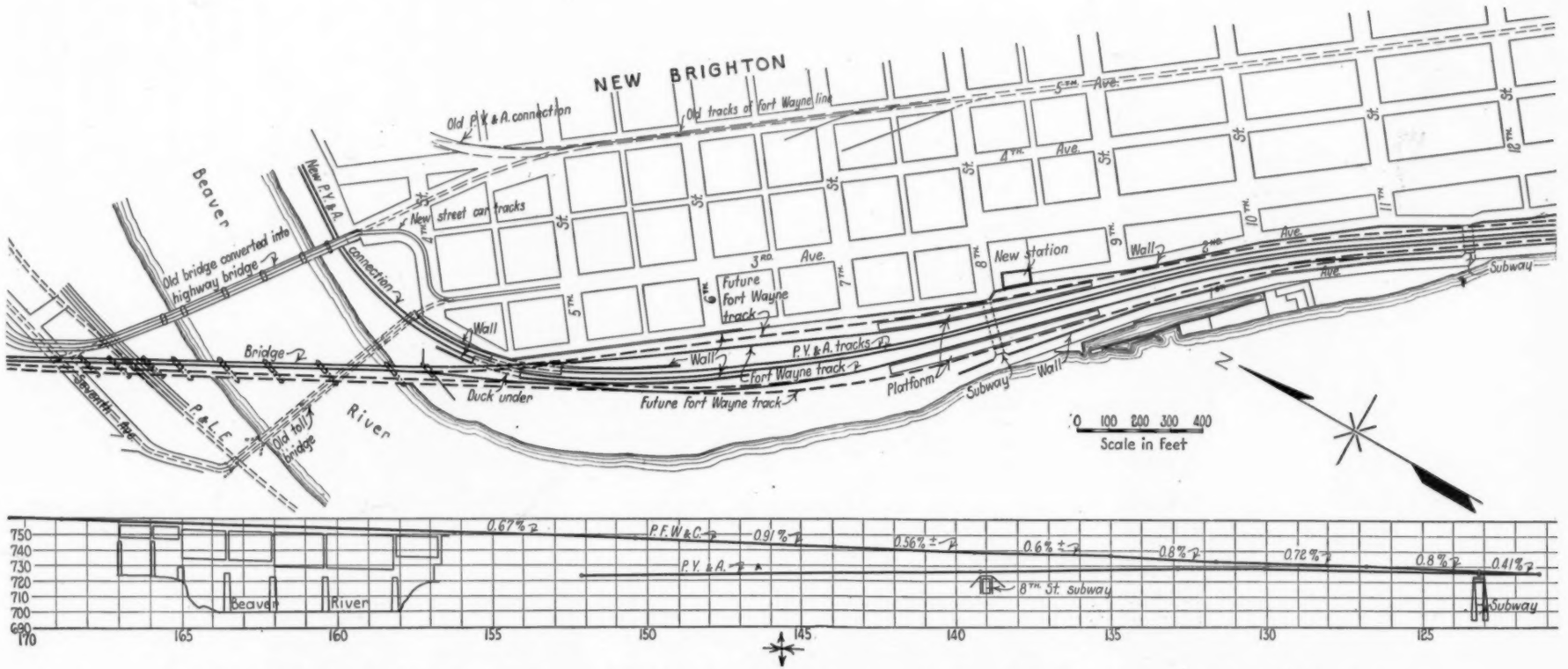
Situation at New Brighton

West from Pittsburgh, the Fort Wayne line of the Pennsylvania occupies the north bank of the Ohio river to Rochester, Pa., where the Cleveland and Pittsburgh division diverges across the Beaver river and continues along the Ohio while the Fort Wayne line turns abruptly to the north to occupy a location parallel to and from 700 ft. to 1,000 ft. back from the east bank of the Beaver river. About three miles north of Rochester, this line turns toward the river which it crosses, to enter the town of Beaver Falls.

For most of the distance between Rochester and Beaver Falls, the Pennsylvania line lies within the corporate limits of New Brighton and for a distance of about a mile it occupied the center of Fifth avenue, the remaining part of this street being paved and used as a public highway. At Sixth street, about 800 ft. from the old Beaver river bridge, the Pittsburgh, Youngstown & Ashtabula line of the Pennsylvania diverged from the Fort Wayne line on a curve to the right to continue further north along the east bank of the Beaver river.



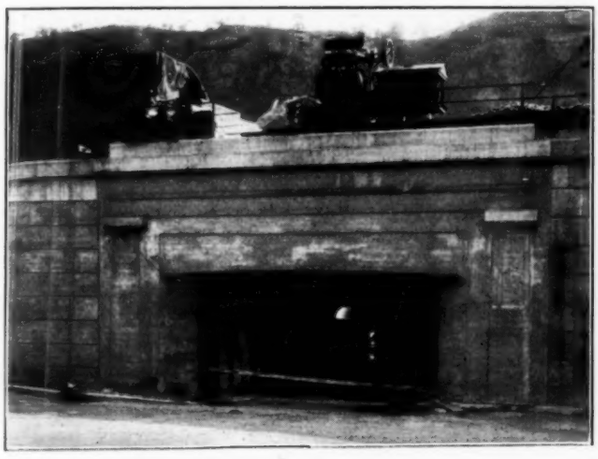
New and Old Locations of the Pennsylvania Between Rochester, Pa., and Beaver Falls



Map of a Part of New Brighton, Pa., and Beaver Falls, Showing the More Important Features of the New Line and Grade Separation Project

The Pennsylvania tracks along Fifth avenue were crossed at grade by 12 streets leading to Third avenue, the main business street of the town, and with the growth of New Brighton and the increase in traffic on the railroad, these grade crossings created a decidedly unsatisfactory situation. The crossings were not only a source of serious hazard but as the tracks carried all of the passenger and freight traffic of the Fort Wayne line as well as that of the P. Y. & A. line there were objectionable delays to street traffic while the railroad was seriously handicapped by the congestion on these two tracks which comprised a 7,300-ft. gap in a four-track route. There was, therefore, a pressing need for the development of a plan that would eliminate the grade crossings and provide four tracks at once with definite opportunity for the addition of two more main tracks to the junction with the P. Y. & A. line whenever additional track capacity is found necessary.

No such plan involving the continued use of Fifth



An Example of Architectural Treatment of Concrete, Portal of the Eighth Street Subway

avenue by the railroad proved feasible. The property lying on both sides of this street is closely built up and there was not even a remote possibility for the railroad to acquire the right to occupy the street with more than two tracks.

Necessary to Abandon the Old Line

As a consequence it was decided to abandon the old line in favor of a new location along the east bank of the Beaver river for the entire distance between Rochester and the crossing of the river into Beaver Falls. This location has the advantage of adequate space for six main tracks. It also places the railroad entirely on one side of the town, thus eliminating the necessity for structures for the separation of street crossings except such as are required for connections to bridges across the river or for needed access to the river front. The plan has the disadvantage of requiring a new bridge across the river but permitted an extension of the P. Y. & A. on a low grade line along the river bank to a connection with the new line.

Another unfavorable condition imposed by the plan was that the location of the new P. Y. & A. connection and that of the new main line for a distance of about 4,000 ft. south from the bridge traversed a built-up section of the town, as a result of which the cost of right-of-way for this part of the line was exceedingly high. The remaining portion of the line traverses low, largely unoccupied land but which is crossed at such intervals by streets leading to bridges over the river that the only satisfactory plan for grade separation was one in which the line is carried over the streets on an embankment. As a consequence, the building of the line required 1,500,000 cu. yd. of fill.

Another item of heavy expense was for retaining wall construction. From Fourth street to Twelfth street, a distance of 3,600 ft., the embankment is supported by a wall along the west side of Second avenue. On the river side of the railroad a retaining wall was required from Eighth street to Fourteenth street, while beyond Fourteenth street for a distance of 10,000 ft. the embankment slope is paved with hand-placed rip rap having a surface area of 156,000 sq. yd.

In addition to the construction work necessary to complete the railway facilities, the railroad was required to pave Nineteenth street, Second avenue and Fourth avenue and following the removal of the tracks from Fifth avenue, it is required to pave that street for its entire length.

Provide Four Main Tracks

The new main line has been built with four main tracks from Rochester to the junction with the Pittsburgh, Youngstown & Ashtabula line and has two tracks for the remaining distance to the junction with the old line in Beaver Falls. However, provision has been made for the future addition of two more main tracks for the entire length of the line.

The new four-track line is provided with a set of

The Old Line of the Pennsylvania Along Fifth Avenue in New Brighton

cross overs under the control of an interlocking plant in the vicinity of Seventeenth street for the purpose of segregating the traffic of the Fort Wayne line from that of the P. Y. & A., the former using the two outside tracks and the latter the two inside tracks north of that point. This made it possible to separate the grades of the two lines so that the two P. Y. & A. tracks could pass through a subway under the westbound Fort Wayne tracks at Fourth street where the two lines diverge. This change in the two lines was carried out by a descending westbound 0.3 per cent grade on the P. Y. & A. tracks and an ascending westbound grade on the Fort Wayne line at a maximum rate of 0.91 per cent which serves also as a portion of the ascent in the line

which continues to cross the Beaver river bridge to attain the required elevation at the junction with the old alinement in Beaver Falls.

The undercrossing for the P. Y. & A. tracks, as shown in one of the photographs, consists of a twin subway on a 6-deg. 25-min. curve compounded near the south portal to 1 deg. 20 min. The structure has curved retaining walls or abutments on each side with an arched center wall between the two tracks and a reinforced concrete slab deck spanning perpendicular to the walls. The vertical headroom is 22 ft., while the clear span over each track is 20 ft. The longitudinal retaining walls which extend beyond the ends of the deck slab are designed to accommodate an extension of the slab whenever an additional westbound track is provided on the Fort Wayne line. However, retaining walls are necessary between the Fort Wayne and the P. Y. & A. tracks for only a relatively small part of the distance within which the grades of the two lines are separated. For a considerable part of this distance the tracks are separated a sufficient distance to permit natural embankment slopes, but further south, where the tracks are closer together and a 1½ to 1 slope could not be had, retaining walls were avoided by covering the steeper slopes with hand placed revetment similar to that used on the river side of the embankment. As shown in one

The Subway for the P. Y. & A. Tracks Under the Westbound Fort Wayne Track

of the photographs, this rip rap or stone paving presents a neat appearance.

Affects Design of Passenger Station

This separation of grades has an important bearing on the layout of the new passenger station at Eighth street. The station building is located at street level on the south side of Eighth street just east of the tracks from which access to the platforms is obtained by means of a subway under the tracks with a stairway and an elevator leading to each platform. There are two platforms, one serving each of the Fort Wayne main tracks. These platforms are located on the outer side of the tracks with the idea that they will serve as island platforms when additional main tracks are added. Owing to the fact that there is a difference in elevation of 12 ft. between the level of the P. Y. & A. tracks and the Fort Wayne tracks at this point, it was necessary to introduce a dip in the Eighth street subway in order to clear the lower level tracks as shown in a construction view of this subway. This photograph also illustrates a pleasing architectural treatment of the portal of this subway.

The new Beaver river bridge is longer than the one it replaces because it was necessary to place it on a skew of about 30 deg. with the direction of the stream, whereas the old bridge comprises substantially a square crossing. The bridge also crosses the right-of-way of the Pittsburgh & Lake Erie and Seventh avenue in Beaver Falls. It consists of four spans of deck girders from 94 to 106.5 ft. long and five spans of riveted deck trusses from 123 to 221.7 ft. long all on concrete piers and abutments. All of the spans are covered with a reinforced concrete slab for ballasted track. The bridge provides for two tracks but is designed for the future addition of sub-structure and superstructure for two additional tracks on the south side. The site of this bridge crosses the location of an old toll highway bridge and as this bridge had to be removed in order to make room for the new railroad bridge, the Pennsylvania agreed to convert its old bridge into a highway crossing of the river and dedicate it to public use.

All Street Crossings Are Separated

There are no highway grade crossings on the new line and subways are provided for undercrossings at seven streets and a small passageway. Most of these provide a clear span of 30 ft. and a clear height of 15 ft., the track span being formed by a longitudinal steel trough floor covered with concrete. One of these subways consists of a concrete arch span, while two of the shorter spans have reinforced concrete slab decks. Two of the structures serve both as highways and waterways, the latter being carried in box culverts below the highway floors. Measures to insure adequate protection for the structure from the elements includes waterproofing of the tops of the spans and the backs of walls, the bitumen coating on the walls being protected by four-inch brick walls. These in turn are backed by 18-in. walls of loose stone to insure adequate drainage.

Practically all of the filling required for making the embankment was secured beyond the limits of this project. Fully three-fourths of it is blast furnace slag secured from the Pittsburgh and Youngstown districts. From Fallston street to Twelfth street the embankment was formed by dumping the fill from an unloading trestle and then widening it with a spreader. On the other portions of the line the unloading track was raised on the fill. The material was delivered by the railroad in work trains, but the unloading and making of the fill was done by the W. F. Trimble & Sons Company, Pittsburgh, which firm also had the contract for the paying, track work, concrete walls and subways, signal towers and station platforms. The Dravo Construction Company, Pittsburgh, had the contract for the sub-structure of the river bridge and the Mt. Vernon Bridge Company, Mt. Vernon, Ohio, for the fabrication and erection of the superstructure.

The work on this project was in progress for a number of years, the first step being to provide temporary tracks along the river front for the Pittsburgh, Youngstown & Ashtabula line as a means of relieving the congestion on the two-track line along Fifth avenue. Operation over this temporary line was started in November, 1923. In June, 1925, this line was put in service on the permanent tracks and the Fort Wayne line trains were transferred to the new line on July 6, 1926.

This project has been carried on under the general supervision of Robert Trimble, assistant chief engineer, Pennsylvania System, and L. J. Riegler, assistant engineer at Pittsburgh. F. I. Conner is resident engineer at New Brighton.

Improving Human Relations in the Transportation Industry*

Substantial progress has been made in the right direction—
Highest type of leadership needed

By A. J. County
Vice-President, Pennsylvania Railroad

THE chief problems of human relations in our time, as affecting the great transportation systems and manufacturing plants, have been to find effective substitutes for that vanished personal contact between management and men, to the end that the old feeling of unity and partnership, which under favorable conditions spontaneously existed when the enterprises were smaller, might be restored. The public will sustain co-operative relations in transportation and production, between men and management, but it will not sustain a dictatorship of either capital or labor.

We have been engaged upon human relations work on the Pennsylvania Railroad for a long time. The same is true of other large American railroad systems. Much of the work has been humanitarian in character, intended to foster the sense of loyalty and increase the attractiveness of the occupation by providing safeguards against misfortune. Most of it on the Pennsylvania is based upon visualizing ourselves as a big family, the individual members of which have spent many years in the service, advancing step by step, numbers becoming stockholders and officers, and all united by a strong sense of pride in our work, loyalty to the company, and duty to the public.

Relief Department

In 1886, just 40 years ago, the first important measure creating a permanent organization for carrying on work of this kind, on our railroad, was adopted by the establishment of our voluntary Relief Department. The primary purpose of the Relief Department is to provide a means whereby our employees, including officers and other workers of all grades, can, by the payment of moderate sums monthly, secure to themselves and their families cash benefits payable in the event of death, sickness, accident or disablement, as well as superannuation allowances or payments supplementing the retirement pensions. The railroad company's treasury bears the entire cost of operating the department so that the dues are available, without any deductions whatever, for the sole purpose of paying benefits and allowances. The protection afforded to Pennsylvania Railroad employees in this way was made available at a time when no other agencies existed to provide it at reasonable rates.

Last year, with a little over 200,000 names on our payrolls, the Relief Department showed a membership of nearly 194,000, and distributed over $5,000,000 in benefits. Altogether, since its establishment, over $85,000,000 have been distributed in benefits and allowances, while the railroad's treasury has contributed $15,400,000 toward carrying on the work of the department and administering its funds.

A remarkable feature of our Relief Department work, and one which has assumed great importance, is the wonderful medical and surgical staff which is maintained for the free use of any employee who chooses to avail himself of its services. At the head of the staff is a chief medical examiner and two assistants. The chief medical examiner and one of the assistants are stationed in Philadelphia and the other assistant in Cleveland. Under them are 53 district examiners and 97 assistant district examiners scattered through all parts of the system. This force, totaling 153, is composed of thoroughly competent physicians and surgeons who devote their entire time to employees requiring treatment. No charge whatever is made for their services to any Pennsylvania Railroad workers.

Besides these, we retain the services of a staff of outstanding specialists in practically every disease and every branch of surgery. They are all men who are recognized leaders in their profession, with national and international reputations for the eminence of their attainments. At Philadelphia, Pittsburgh, Chicago, Buffalo and New York we also retain eye specialists of very high rank, to whom any employee is free to go for examination, treatment, surgical work or prescription for glasses. All advice or surgical or other treatment of any character given by any of these specialists is rendered to our employees absolutely without charge.

Our policy in maintaining this distinguished and complete medical and surgical force, which necessarily involves a very large expenditure, may be briefly explained. In the first place we wish to make sure that no man who devolops any form of disease is allowed to continue working at an occupation in which the diseased condition may involve danger to himself or others. For instance, we would not want a man to remain at the throttle of a locomotive if he developed a tendency to heart trouble. It is the job of the district medical examiners and their assistants to discover all such cases. What we then do is to find another job for the man, if that is practicable, for the time being. If not, and he is of the pensionable age, he is recommended for the pension roll. If he is below the pension age, and it is not possible to place him in any self-supporting railroad position at all, he is carried on the relief rolls and every reasonable course is followed in aiding him to sustain himself. These moves, however, are merely regarded as expedients resorted to either temporarily or because no other steps are practicable. What we try ultimately to do in every case, where there is any way to effect it, is to cure the man as soon as possible and get him back to his old job and full earning power. That, of course, is where the work of the great specialists, to whom I have referred, comes in. Wealth cannot buy any greater skill or experience in the curative arts than are available in this manner, without charge, to any Pennsylvania Railroad employee.

Our pension department, which is operated in conjunction with the relief work, was established in 1900,

* From an address before the ninth annual conference on "Human Relations in Industry," held under the auspices of the Industrial Department of Young Men's Christian Asociation at Silver Bay, Lake George, N. Y.

and now covers not only the Pennsylvania Railroad Company proper, but also all of its operating subsidiaries. The pension rules apply impartially and uniformly to all officers and employees without regard to rank or duties. Retirement is compulsory in every case upon reaching the age of 70 years. Between the ages of 65 and 70 an employee may be retired, under certain circumstances, if incapacitated for the proper performance of duty.

The amount of pension paid in any case is 1 per cent of the average earnings of the last 10 years of active service, multiplied by the total years of service. Thus, if a man enters the company's employ at the age of 25, and retires automatically at the age of 70, he will have had 45 years' service to his credit. If his average earnings in the last ten years are $200 a month, his pension will be 45 per cent of $200 or $90 monthly.

At the close of last year 8,333 retired employees were on our "Roll of Honor," as we term the pension list. The payments of pensions during the year exceeded $4,760,000. Since the pension system was established in 1889, the total payments have exceeded $41,000,000, exclusive of the expense of operating the department. All of this has been paid by the company. It may be of further interest to know that the oldest living pensioner, at the close of 1925, was 97 years of age, while another who died during the year would have reached the century mark had his life been prolonged a few months.

Provident and Loan Association

More recently our Employes' Provident and Loan Association has been organized. While its work has the approval and encouragement of the management, it represents a voluntary and wholly independent organization among the employees and officers, all of whom are eligible for membership. Its purpose is to encourage and provide means for thrift and saving on the part of our company's working forces.

It began by taking over the activities of the company's previously existing employees' saving funds, which had been established on the lines east of Pittsburgh in 1888, and on the western lines in 1903. In that capacity it affords facilities for regular saving deposits upon which interest is allowed. It also provides means for the purchase of stock and other securities of the Pennsylvania Railroad and affiliated companies either outright or upon installments. It offers a plan for purchasing additional pension allowances by the payment of monthly contributions. It grants building loans to assist employees in the purchase of homes, and it advances other loans to help employees in meeting emergencies requiring financial assistance.

At the close of last year the Provident and Loan Association had over 68,000 members, of whom 53,000 had saving fund accounts, while nearly 14,000 had purchased or were purchasing stock in the Pennsylvania Railroad to a total amount in excess of 62,000 shares. There were 1,230 members who were increasing their pensions, while building loans to the extent of nearly $1,700,000 were outstanding.

Mutual Beneficial Association

About a dozen years ago another group of employees, with the approval of the management, but independently of any financial aid, organized the Mutual Beneficial Association of Pennsylvania Railroad Employees. Its membership now is nearly 17,000. It provides low-rate death and disability benefits and also offers means for purchasing Pennsylvania Railroad securities upon installments or otherwise, as well as for the co-operative buying of household supplies and personal necessities. Through this association, up to the close of 1925, over 5,200 employees had purchased nearly 27,000 shares of stock.

Combining the work of the Provident and the Mutual Beneficial Association, it will be seen that through these two organizations over 19,000 Pennsylvania Railroad employees have become stockholders in the company, and have bought altogether some 89,000 shares, with a total par value of over $4,450,000. Many other officers and employees are stockholders by the purchase of shares directly through brokers or banks, but no accurate record exists of their number.

It is gratifying to note the increase during recent years in the officers and employees who have become stockholders and bondholders. Ownership and working responsibilities make splendid twins. Moreover, if close to 50 per cent of gross earnings are required to meet wages, is it not eminently fitting that some of the savings permitted by these wages should be invested in the property from which they are derived? The total capital stock of the Pennsylvania Railroad Company is $500,000,000. The total payroll of the system for a single year is $375,000,000. Think of the possibilities which lie in the savings out of that latter sum.

Women's Aid

Another activity fostered and encouraged by our management, which deserves particular mention and praise, is the Women's Aid of the Pennsylvania Railroad. This is the outgrowth of an organization formed during the war by the wives and daughters of our employees and officers to assist the families of those who entered the military service. Following the close of the war it was reorganized on a peace basis and its work greatly extended. It is now a permanent association for the purpose of keeping alive the spirit of friendship and mutual helpfulness among Pennsylvania Railroad families and of rendering practical assistance where required.

Last year membership in the Women's Aid was 207,320, the highest at which it has ever stood. It expended nearly $110,000 in relief work, and its members visited 27,727 railroad families, giving assistance where required in the form of money, medical attention, food, clothing, fuel, etc., and carrying flowers, fruits and other delicacies to the sick or injured. The work of this association is indeed a great tribute to the devotion and unselfishness of the women who carry it on.

Y. M. C. A.

Our management officially indorses and encourages its railroad Young Men's Christian Association branches and has for over 40 years been an extensive contributor to the carrying on of its work on our lines. We regard it as having been a very important factor and valuable medium in encouraging good relations with our employees.

It is impossible to recount the number of co-operative societies, building and loan associations, etc., operated chiefly for and by Pennsylvania Railroad men and women; but they are an important influence for thrift and stability and have the approval and endorsement of our management, though remaining in every sense financially independent.

Employee Representation

Lastly, but most extensive and perhaps most important of all among the measures for building up harmonious relations between men and management on the Pennsylvania Railroad, I will mention our employee representation plan. It is not my intention to discuss the plan in de-

tail. I take it that practically all of you must have heard of it and are more or less familiar with its general features. Essentially it is a system of collective bargaining within our own ranks. It is based upon the settlement of all controversial questions regarding wages, discipline, conditions of employment, etc., by conferences between representatives of the management, on the one side, and on the other representatives of the employees chosen from among their own number for that particular purpose.

A system of appeals is arranged so that if a divisional conference cannot settle a question it will go to a grand divisional conference, and then to a conference in which the general manager of the region and his immediate assistants act for the management, while employees chosen as regional representatives act for their respective fellow-workers. Should the general manager's conference not result in an agreement, final appeal is taken to what we term our "joint reviewing committees." One of these committes is constituted for each group of classified employees. Each consists of an equal number of representatives of the management and representatives of the workers. They sit, not as the advocates of opposing interests, but as impartial judicial tribunals, and a two-thirds vote is required for every decision. This means that in each decision rendered some representatives of the management must vote with the employees, or vice versa.

Out of the many thousands of cases which have arisen since our plan was established, a little over five years ago, in less than a half dozen instances have the joint reviewing committees been unable to come to a two-thirds vote. All of these cases were, however, settled amicably by arbitration, for which provision is also made.

One of the best things we can say about this plan is that it has had the roughest kind of tests since 1920, and works. It provides important avenues of public information on labor questions. It gives our employees a democratic share in the shaping of their own conditions. The period during which it has been in effect has been marked by greatly increased efficiency and economy in operation and notable improvement in our company's financial position. It has the support and approval of an overwhelming majority of the employees, as well as the complete confidence of the management. Finally, some of its most important principles are recognized and embodied in the new railway labor act, which is applicable to all railroads but which completely fits in with our plan and requires no modifications in its workings on our lines. We regard our employee representation plan as a permanent institution in Pennsylvania Railroad affairs.

Striving Toward an Ideal

Our ideal on the Pennsylvania Railroad, as I have already indicated, has always been to consider all members of our entire working force, from trackhand to president, as constituting one great family, all engaged, in their respective ways, in the same indispensable public service, all obtaining their living from it, all contributing their individual shares to its successful operation, and many of them participating in the financial results as part owners.

We are nearer to the realization of that ideal today than ever before in our history, notwithstanding the troublesome and difficult days through which we passed during the war and immediately after. Loyalty from top to bottom of the force, and friendly feeling between management and men, are at the highest pitch ever reached on our railroad. It is, therefore, no wonder that while at the close of the war operating expenses exhausted one hundred cents out of every dollar of revenue, leaving nothing for fixed charges or return to the stockholders, now less than eighty cents of every revenue dollar are sufficient to pay the expenses of operation.

Turn-over Reduced

The annual turn-over in the force has been reduced by about 75 per cent in the last few years, and is now almost entirely confined to unskilled labor and to the few who are always willing to take temporary jobs at braking or similar occupations while preparing for other work. Among such men as foremen in all ranks, engineers, conductors, firemen, clerical supervisors, etc., who are the backbone of the railroad, the turn-over is practically zero. These men, almost without exception, look upon their occupations as life jobs. We are handling the peak traffic of our history, with the greatest efficiency and economy we have ever been able to attain, and last year we earned the dividend on our company's stock more than twice over.

In contributing to these fine results, the loyalty and devotion of the working forces, ably directed, were an outstanding factor and clearly and unmistakably reflect the results of many years of co-operative efforts in building up sound and harmonious human relations on the Pennsylvania Railroad. Without claiming to have reached perfection in labor relations, our officers and directors feel more encouragement than ever before to redouble their efforts and give the very best that is in them toward establishing the highest possible standards of ability and efficiency in the work of administering this great property devoted to the public service.

I doubt whether there is another very large enterprise of any kind in the world in which length of service and continuity of employment are so marked and general as on the Pennsylvania Railroad. Retirements under our pension plan are in the neighborhood of 90 per month. Observation shows that of those reaching the retirement age, an average of well over 50 per cent have had 40 years or more service, and nearly 10 per cent a half century or over. These figures would be very difficult to match in any other enterprise of any kind employing over 200,000 workers. They show that American railroad service, as typified on the Pennsylvania, is an extremely desirable form of employment and that the vast majority of those once entering it desire to stay for the remainder of their working lives.

Comments on the Capitalistic System

People may scoff at the capitalistic system and complain of labor difficulties in the United States, but the leaders of both capital and labor have learned that in unity of aim and purpose there is great prosperity, while in pulling apart they hurt each other and range public opinion against the side which creates hostility. The public is awake to the fact that there is no justification for strikes in the transportation industry which require the country to suffer in order that settlement may be reached. All questions of personal freedom must subordinate themselves to that fundamental truth.

Capitalism as an economic system has become, in our country, the emblem of successful democracy, and has won its greatest vindication in the widespread prosperity and happiness of the people of the United States. We have our millionaires and our big corporations, but we have learned to appreciate and deal constructively with them, not only because they have been the chief factors in organizing mass production and distribution, and in that manner making possible widespread employment at high wages, but also because they pay our taxes and are most liberal in the endowment and support of institutions

of every kind for our benefit and the advancement of art, science and the comfort of living.

We no longer have a capitalistic class set apart from the general body of the population in this country. Our wage earners themselves are rapidly accumulating property, vast in the aggregate, and in that manner are themselves becoming capitalists. There is every desire to see them own their own houses, ride in automobiles, and live in comfort, as the reward of steady work, the use of education and the exercise of thrift. They are winning their way by increased production at lower cost, in co-operation with wide-awake management, and by wise capital investments and marketing. Their earnings are approximating those received from the professions and from independent business; and as economic distinctions approach the vanishing point, so do class distinctions and jealousies.

It has been estimated that out of twenty-five billions of dollars in wages paid the workers of America each year, from six to seven billions are saved and become permanent capital. This helps us understand the development of the large and powerful savings, insurance, and similar institutions, several of which are now being fostered by labor groups. Their organizers, moreover, are to be commended for the good sense they have displayed in not limiting the services and facilities of these institutions to the members of their own crafts. Instead, they are competing for their portion of the savings of all workers and professions. Class distinctions have little place in banking and are certainly not among the best policies for meeting lean periods.

Wage Earners as Partners

The growth of employee stockholders among the railroads and other enterprises is also significant of the new social order in America. Every employee stockholder has a dual relationship towards his company. He is both a wage earner and a partner, and as partner or part owner, he is to that extent his own employer. No form of government ownership can compare, as a domestic ideal, with direct ownership by the people themselves, and particularly by those who are gaining their livelihood through the very enterprise in which they become investors.

The rise of American wage earners to financial equality with, or in some cases superiority to the so-called "white-collar" workers, carries with it a new responsibility. This brings me to a different phase of the question which I wish to touch upon very briefly.

The day long ago passed when the owners of public service properties, such as our railroads, proclaimed either moral or legal freedom to manage these properties solely with reference to their own interests or benefit. Their responsibilities to the public obviously became too great for such viewpoint to remain tenable. The public today will not tolerate dictatorship by labor any more than by capital or management. Therefore, I believe we now have reached the position where wage earners, with their greatly increased earning power, and the practical elimination of the distinctions between property owning and non-property owning classes, must appraise their responsibilities in a new light.

Let us consider a specific example. The gross earnings of our railroads for 157 days out of each year are required to pay their own wage bills. The earnings of 27 more days are required for the costs of locomotive fuel, the vastly greater part of which represents wages of coal miners. Seventy more days' income are required for materials and supplies, representing in turn chiefly industrial wages. Taxes take the earnings of 21 days of each year and interest on borrowed capital, represented chiefly by bond issues, the earnings of 41 days. The earnings of only 19 days out of each year return to the stockholders in dividends, and the earnings of only 6 days are retained as reserves for additions and betterments, and to provide a credit basis.

"Come Now, Let Us Reason Together"

When we consider these figures and appreciate the overwhelming share of gross earnings required to meet wages, direct and indirect, we begin to realize the responsibility of the workers in the transportation industry toward the users of that service, and to appreciate that it is not inferior, in its obligations, to the responsibilities of ownership and management.

Surely the lesson to be drawn is that, in any sane view of the situation, strife between labor and management in railroading, or in any other public service, or industry upon which the public is dependent, has become an anachronism. There is room for common sense and plain dealing, but no longer any place for the selfish, "hard-boiled" leaders or followers who feel they can hold their places only through industrial warfare in our economic life, at the expense of the public. There is no reason or excuse for the existence of such warfare as long as we have intelligent public opinion, with ample resources to keep informed of the real facts upon which to reach sound conclusions.

We need new leadership and new ideas and ideals to perpetuate and make secure our present standards of advancement, work and ownership. Our old ideas of imaginary advancement through hostilities, suffering and class antagonisms are dead, and should be buried. The words of the prophet ring out, "Come now, let us reason together." Fighting each other will, from this time on, surely condemn, as guilty, both labor and management in the forum of informed public opinion.

Clearly the American workman has reached the place where he is far too well off to afford jeopardizing his welfare and good fortune by any such pitiful blunder as the general strike attempted a short time ago in England. The American public, as a whole, has a perfect right to demand that henceforth workers and management shall settle their differences peacefully, under the free laws and regulations established for such purposes and without interruption of service or production, and that strike and lockout alike shall henceforth be abandoned. Moreover, the public was never better fortified to protect itself against the consequences of such out-worn and wasteful measures, because of abundant motor ownership and service, good highways, and the other means of rapid and easy transportation and communication which now make the necessaries of life available to any locality or country in time of need.

Industrial Peace

We have attained the level of general prosperity in this country in which permanent industrial peace is not merely an ideal. It is both possible and profitable to men, managements and the public. Where that is true the maintenance of such peace becomes a positive duty.

We have demonstrated the fallacy of the Marxian doctrines, including the false teaching of the inevitability of class conflict and the equally erroneous one which held that under the capitalist system wealth tends to segregate itself more and more into the hands of a few inordinately rich individuals at the expense of ever-growing poverty among the masses.

America is today the living refutation of these doctrines. Instead of suffering from the growth of class conflict, we are soundly basing our national hopes and aspirations upon processes visibly at work before our

eyes, which, on the one hand, are completing the practical elimination of class lines altogether, and on the other are opening wide to every one of normal capacity and intelligence the door of entry into the capitalist or property-owning status. Instead of the concentration of wealth into a few hands, which Marx and his followers hold to be inevitable under capitalism, we are witnessing the most remarkable and extensive popular distribution of wealth in all of history, and to an extent which no one would have deemed possible a generation ago.

The Impelling Motive

But in our just enthusiasm over the wonderful gains in material welfare and happiness which have come to the mass of our people, let us not make the error of forgetting that our advance has not been wholly or exclusively materialistic. Heroism and self-sacrifice in all ranks of life were never more generally manifest in the history of any nation. This is no time to be cynical, to stand aloof, to decry our own age, or to lament the supposed superior virtues of past eras. Religion, learning, art, science and charity, and the spiritual resources to advance those ideals and practices which make life worth living in its moral, aesthetic and intellectual aspects, were never so prevalent nor better known. Never was the call clearer that these inward forces be evoked as an inspiration for all our people.

Leadership in all these provinces of achievement must be made equal to the demand, and when and where that condition is found the common people follow gladly. Those who can reach the head and heart with leadership and a message of faith, hope and real inspiration have no doubt or uncertainty but that the Kingdom of God begins here on this earth.

These are our heritages, spiritual and material, here in America. They are the most valuable that have ever come to any people. It is the duty of every one of us, both as a public and moral obligation, and in the highest and most intelligent self-interest, to work unitedly and whole-heartedly for their preservation and protection.

Pere Marquette Train Control Approved

WASHINGTON, D. C.

DIVISION 1 of the Interstate Commerce Commission has issued a report approving with one exception the installation of the General Railway Signal Company's intermittent induction type of automatic train control with forestalling feature, on the Detroit division of the Pere Marquette.

This device was first placed in service on the Pere Marquette between Seymour, Mich., and Clarksville, 22.82 miles, single track, and .75 miles double track, with six equipped locomotives. A preliminary inspection was made in November, 1925. The installation now reported on was completed in December, 1925. It extends from Seymour to North Lansing, 59.2 miles, single track, and 1.6 miles, double track. There are 67 locomotives equipped with the device.

In this installation there are two acknowledging contactors, one on the engineman's side of the cab and the other on the fireman's side. If, when approaching a caution signal the engineman and fireman both operate the handles of the contactors within the prescribed time interval and hold them there while passing over the inductor, the brake application is forestalled. If only one contactor is operated, the brakes apply.

The cost of this installation to date, as reported by the carrier, covering wayside and locomotive equipment and subject to possible unimportant revisions, is given in the table in the second column.

As a result of this inspection and test, the installation . . . is approved except as hereinafter indicated.

1.	Total cost of roadway equipment of train control installation, less power lines and power apparatus, if any, and less cost of signals or cost of change in existing signal system; less salvage	$17,226.62
2.	Total cost of power lines and power apparatus, if any, less salvage	none
3.	Total cost of signal system installed in connection with train control; less salvage	none
4.	Total cost of changes in existing signal system made necessary by train control; less salvage	4,975.38
	Total cost of roadway installation	$22,202.00
	Total cost locomotive equipment installed	41,211.08
	Total cost of installation	$63,413.08

EXCEPTIONS

1. The inductor at Signal No. 4 on the Saginaw Branch at Elmdale interlocker is not located braking distance from this signal. The switches and signals at this point are so arranged as to divert a Saginaw Branch train to the passing track should main line signals be cleared for an eastward or westward main track movement, and this inductor should be moved to a point braking distance from the passing track should a Saginaw Branch train over-run the signal under these circumstances.

REQUIREMENTS

The railway company is expected to comply with the following requirements as to maintenance, tests, inspection, etc.

1. Arrangements should promptly be made for careful inspection and test of the train-stop equipment on all locomotives operated in train-stop equipped territory upon arrival at, and before departure from, designated inspection and repair points. . . .

2. At the time of the inspection there was evidence that the locomotive apparatus was not being adequately maintained. Grounds in the locomotive circuits were not being kept at a minimum. Locomotives should not be permitted to leave a round-house with serious grounds, and since certain crosses, or grounds, in the locomotive circuits could result in false clear operations, their integrity must be adequately protected at all times.

3. Locomotive receivers should be checked with a substantially made gage and on level track. Where not now furnished, suitable measuring instruments should be provided.

4. Steps should be taken to insure that the provision for periodic tests of locomotive train-stop equipment are observed.

5. A form should be provided for and used by each engineman in reporting failures of the apparatus and any irregularities in the operation of the device. Enginemen should report in detail whenever necessary to cut out the device.

6. In cases of train stop failures on the road, enginemen should show full information on their work reports in order that the maintenance men at terminals may promptly locate the trouble, and in order to insure repairs being made promptly, each round-house should have sufficient spare parts on hand at all times.

7. Should the present inductor ties show evidence of failure to properly secure the inductors in place, longer ties should be substituted promptly.

8. As was pointed out in the report of January 5, 1926, following a preliminary inspection "the closing of the inductor winding results in a clear operation of the device; hence a cross in the wires leading to this inductor would result in a false clear condition of the inductor. It is therefore vital that the installation and maintenance of the track inductor circuit shall be such as to protect the integrity of this circuit."

9. The roadway installation should be checked frequently with the circuit plans to insure that the circuits are correct.

10. Arrangements should promptly be made for careful, periodical inspection and test of all roadside train-stop equipment and circuits, reports being made on a form provided for that purpose and forwarded by the inspectors to a designated officer.

11. The type of fouling protection employed at sidings and crossovers should be given careful consideration with a view to possibly providing increased protection.

12. The track inductors are located at the signals and the stop operation for an occupied block is provided at the next signal in the rear of that at the entrance to such block. This

requires an engineman to forestall at a caution signal in order to enter the caution block, and should this block be too long and an engineman not be alert while running therein, the train could approach the stop signal at such speed as to overrun this signal. The spacing of signals in connection with this installation varies within a range of from 1,283 feet to 20,507 feet, or 3.8 miles. This is brought to the carrier's attention for consideration.

P. & S. Committee Members

DIVISION VI, Purchases and Stores, A. R. A., of which D. C. Curtis, chief purchasing officer of the Chicago, Milwaukee & St. Paul, is chairman, and W. H. Farrell is secretary, has completed the selection of subjects for next year's convention and also the personnel of the various committees. This work was carried on under the direction of the chairman of personnel, W. Davidson, general storekeeper, Illinois Central. The total of 19 committees have been appointed, including four new committees, namely: The Committee on the Control of Shop Manufacturing Orders for Scrap Material, the Committee on Fire Prevention, the Committee on Stores Department Safety Practice, and the Committee on Carrying Costs on Material and Supplies Investment. Three committees, namely: on Supply Train Operation, General Accounting and Control of Line Stock have been discontinued, while the committees on Store Department Book of Rules, Classification of Material, Store Department Building and Facilities for Handling Material will not submit reports at the next convention. The number of committee members has been increased to 184, of which approximately 80 will serve on committees for the first time. Over 50 railroads are represented. The committees and the chairman of each are as follows:

Subject No. 1—Stores Department Book of Rules: Chairman, L. T. Hoffman, traveling storekeeper, U. P.

Subject No. 2—Classification of Material: Chairman, E. H. Hughes, general storekeeper, K.C.S.

Subject No. 3—Recovery, Repair and Reclamation of Discarded Material—Classification, Handling and Sale of Scrap: Chairman, G. W. Lieber, superintendent of Reclamation, M-K-T.

Subject No. 4—Provisions for Uniform Observance of General Balance Sheet Account 716—Material and Supplies, and Recommendations Covering Charges to Material Stores Expenses, Paragraph 16—Special Instructions Operating Expenses: Chairman, A. L. Sorenson, manager of stores, Erie.

Subject No. 5—Forest Products: Chairman, O. A. Schultz, chief lumber inspector, C. B. & Q.

Subject No. 6—Stores Department Buildings and Facilities for Handling Materials: Chairman, E. H. Polk, district storekeeper, S.P.

Subject No. 7—Workable Rules in Connection with the Carrying out of the Provisions of Section 10 of the Clayton Anti-Trust Act: Chairman, E. A. Clifford, assistant general purchasing agent, A.T. & S.F.

Subject No. 8—Control of Shop Manufacturing Orders for Stock Material—New Subject: Chairman, W. M. Hinkey, district storekeeper, B. & O.

Subject No. 9—Joint Committee on Fuel Conservation Division VI—Representatives: Chairman, S. Porcher, general purchasing agent, Penn.

Subject No. 10—Budget Control of Material and Supplies Requirements: Chairman, R. C. Harris, assistant to stores manager, Penn.

Subject No. 11—Unit Piling and Method of Pricing Materials: Chairman, L. B. Wood, g. s. k., S.P.—L. & T.

Subject No. 12—Purchasing Agent's Office Records and Office Organization: Chairman, A. N. Laret, assistant to vice-president and chief purchasing officer, St. L.—S.F.

Subject No. 13—Stationery and Printing: Chairman, W. W. Griswold, stationer, C.R.I. & P.

Subject No. 14—Fire Prevention—New Subject: Chairman, W. H. Morris, assistant storekeeper, Reading.

Subject No. 15—Motorized and Unified Delivery of Materials: Chairman, W. S. Morehead, assistant general storekeeper, I.C.

Subject No. 16—Standardization and Simplification of Store Stock and Disposition of Material Reaching Obsolescence: Chairman, W. L. Hunker, district storekeeper, C.R.I. & P.

Subject No. 17—Stores Department Safety Practice—New Subject: Chairman, J. L. Irish, general storekeeper, O.W.R. & N.

Subject No. 18—Uniform Methods Pertaining to Purchases of Equipment and Large Material Contracts and Vital Statistics Relating to Purchases: Chairman, M. E. Towner, general purchasing agent, Western Maryland.

Subject No. 19—Carrying Cost on Material and Supplies Investment—New Subject: Chairman, W. B. Hall, purchasing agent, D. & R.G.W.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading for the week ended August 28 exceeded all previous records with a total of 1,136,233 cars, an increase of 11,795 cars as compared with the corresponding week of last year, the previous high record, and an increase of 115,424 cars as compared with the corresponding week of 1924. Increases as compared with last year were shown only in five districts, however, as there were decreases in the Southern and Southwestern districts. Decreases were also reported in the loading of livestock, coal and forest products. All districts except the Central Western showed increases as compared with 1924. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

REVENUE FREIGHT CAR LOADING, WEEK ENDED AUGUST 28, 1926

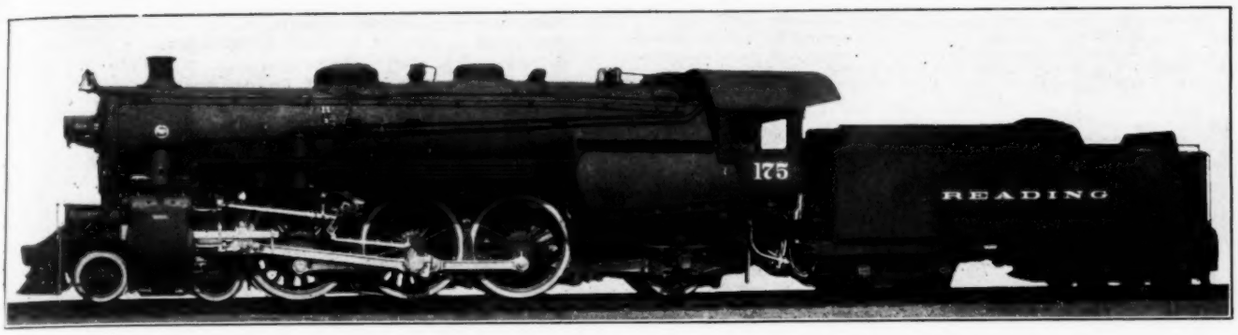
Districts	1926	1925	1924
Eastern	266,295	262,733	236,230
Allegheny	226,617	224,949	202,488
Pocahontas	61,793	58,543	47,903
Southern	150,882	158,353	140,205
Northwestern	183,087	175,717	151,917
Central Western	166,700	159,268	170,292
Southwestern	80,859	84,875	71,774
Total all roads	1,136,233	1,124,438	1,020,809
Commodities			
Grain and grain products	57,219	56,979	68,592
Live stock	31,235	31,741	32,315
Coal	201,159	211,768	169,110
Coke	11,833	10,307	7,841
Forest products	70,902	72,150	69,471
Ore	80,425	62,633	48,923
Merchandise, L. C. L.	268,982	264,792	247,174
Miscellaneous	414,478	414,068	377,383
August 21	1,088,791	1,179,995	982,760
August 14	1,109,557	1,064,476	953,408
August 7	1,083,199	1,052,518	941,407
July 31	1,102,590	1,045,626	945,613
Cumulative total, 35 weeks	34,699,511	33,595,008	31,554,058

The freight car surplus for the week ended August 22 averaged 168,884 cars, including 38,813 coal cars, 96,948 box cars and 10,848 refrigerator cars. The Canadian roads for the same week had a surplus of 22,602 cars, including 20,550 box cars.

Car Loading in Canada

With the beginning of the movement of new grain revenue car loadings at stations in Canada for the week ended August 28 showed an increase in total loadings of 1,875 cars, grain accounting for an increase of 1,334 cars. Compared with the same week last year the increase was 5,033 cars.

	Total for Canada			Cumulative Totals to Date	
Commodities	Aug. 28, 1926	Aug. 21, 1926	Aug. 29, 1925	1926	1925
Grain & Grain Products	4,793	3,459	4,293	215,706	186,750
Live Stock	2,404	2,192	2,589	68,510	75,591
Coal	6,958	7,081	4,941	177,989	110,526
Coke	352	297	363	12,434	9,270
Lumber	3,846	3,893	3,926	124,235	121,489
Pulpwood	2,229	2,241	1,885	98,328	95,140
Pulp and Paper	1,973	2,086	1,897	82,981	69,304
Other Forest Products	2,559	2,465	2,417	107,406	97,839
Ore	2,116	2,186	1,351	56,615	46,115
Merchandise, L. C. L.	17,905	17,291	16,692	547,785	515,072
Miscellaneous	15,832	15,901	15,580	468,791	411,735
Total Cars Loaded	60,967	59,092	55,934	1,960,780	1,738,831
Total Cars Received from Connections	38,771	36,818	34,980	1,260,994	1,126,258



Pacific Type Locomotive Built for the Reading by the Baldwin Locomotive Works

Pacific Type Locomotives for the Reading

Designed to haul heavy trains in fast passenger service— Maximum tractive force of 42,800 *lb.*

THE Reading has recently placed in service five locomotives of the Pacific type, built by the Baldwin Locomotive Works, which are a larger development of the same type built in 1916* for this road. These locomotives are designed with a limit of 65,000 lb. load on each pair of driving wheels, and are to be used to haul heavy passenger trains in exceptionally fast service. At times these locomotives run 80 m.p.h. for a distance of 30 miles. The weight in working order is 306,360 lb., of which 192,540 lb. is on the drivers, 52,160 lb. on the engine truck and 61,660 lb. on the trailing truck. The loaded weight of the tender is 189,400 lb.

With 25-in. by 28-in. cylinders, 230 lb. boiler working pressure and driving wheels 80 in. in diameter, the maximum tractive force is 42,800 lb., giving a factor of adhesion of 4.5. The valves are of the piston type, 13 in. in diameter, with 7 in. maximum travel, 1⅜-in. steam lap, 5/16-in. lead and ¼-in. exhaust clearance. They are driven by a Walschaert valve gear, which together with the reciprocating parts, has been made as light as possible to reduce the ill effects from counterbalancing.

The boiler is of the Wootten type, the diameter at the front end being 74 in. and the greatest diameter 84 in. It has a firebox 10 ft. 6 in. long by 9 ft. wide, giving a grate area of 94½ sq. ft. There is a 48-in. combustion chamber which provides a length of 19 ft. for the 188 2¼-in. tubes and 36 5½-in. flues. The heating surface of the tubes and flues is 2,731 sq. ft., and that of the firebox is 314 sq. ft., giving a total evaporative heating surface of 3,045 sq. ft. The superheating surface is 745 sq. ft. The fuel used is mixed anthracite and bituminous coal.

The extreme height of the locomotive is 15 ft. 1 in. and the center line of the boiler is 10 ft. above the rail. The engine truck wheels are 36 in. in diameter and the trailing truck wheels, 54 in. The total engine wheel base is 35 ft. 11 in., while the total wheel base of the locomotive and tender is 72 ft. 2¼ in.

An interesting feature of these locomotives is the front end arrangement which is intended especially to prevent the throwing of fire from the stack. The smokestack proper has an inside extension of only 9 in., there being a petticoat pipe with an adjustable sleeve, the top of which is 8 in. below the stack extension and the bottom 2⅞ in. above the top of the exhaust nozzle, which is 15 in. high. A netting is placed in an approximately vertical position both in front of and behind the petticoat pipe and a series of deflectors is placed in front of the netting.

The superheater dampers ordinarily used have been omitted on these locomotives. Special equipment includes the Ragonnet reverse gear, Cole trailer truck, Franklin fire door and Sellers exhaust steam injectors. Three of these locomotives are equipped with the Union Switch and Signal Company's automatic train control.

The tender has a water capacity of 9,000 gal. and a coal capacity of 18 tons. It has a wheel base of 23 ft. 5 in. and is equipped with a water scoop.

TABLE OF DIMENSIONS, WEIGHTS AND PROPORTIONS

Railroad	Reading
Builder	Baldwin
Type of locomotive	4-6-2
Service	Passenger
Cylinders, diameter and stroke	25 in. by 28 in.
Valve gear, type	Walschaert
Valves, piston type, size	13 in.
Maximum travel	7 in.
Outside lap	1⅜ in.
Exhaust clearance	¼ in.
Lead in full gear	5/16 in.
Weights in working order:	
On drivers	192,540 lb.
On front truck	52,160 lb.
On trailing truck	61,660 lb.
Total engine	306,360 lb.
Total tender	189,400 lb.
Total engine and tender	495,760 lb.
Wheel bases:	
Driving	13 ft. 10 in.
Total engine	35 ft. 11 in.
Total engine and tender	72 ft. 2¼ in.
Wheels, diameter outside tires:	
Driving	80 in.
Front truck	36 in.
Trailing truck	54 in.
Journals, diameter and length:	
Driving	11½ in. by 14 in.
Front truck	6½ in. by 13 in.
Trailing truck	9 in. by 14 in.
Boiler:	
Type	Wootten
Steam pressure	230 lb.
Fuel, kind	Mixed Anthracite and Bituminous

*The locomotives built in 1916 were exhibited that year at the M. C. B. and M. M. conventions, Atlantic City, N. J. For a description see the July 21, 1916, issue of the *Railway Age Gazette*, page 107.

Diameter, first ring, outside	74 in.
Firebox, length and width	10 ft. 6 in. by 9 ft.
Combustion chamber, length	48 in.
Tubes, number and diameter	188—2¼ in.
Flues, number and diameter	36—5½ in.
Length over tube sheets	19 ft.
Grate area	94.5 sq. ft.
Heating surfaces:	
Firebox and comb. chamber	314 sq. ft.
Tubes and flues	2,731 sq. ft.
Total evaporative	3,045 sq. ft.
Superheating	745 sq. ft.
Comb. evaporative and superheating	3,790 sq. ft.
Tender:	
Water capacity	9,000 gal.
Coal capacity	18 tons
Journals, diameter and length	6 in. by 11 in.
General data, estimated:	
Rated tractive force, 85 per cent	42,800 lb.
Cylinder horsepower (Cole)	2,582 hp.
Weight proportions:	
Weight on drivers ÷ total weight engine, per cent	62.8
Weight on drivers ÷ tractive force	4.49
Total weight engine ÷ cylinder hp	118.8
Total weight engine ÷ comb. heat. surface	81.2
Boiler proportions:	
Comb. heat. surface ÷ cylinder hp	1.47
Tractive force ÷ comb. heat. surface	11.3
Tractive force × diam. drivers ÷ comb. heat. surface	905
Cylinder hp. ÷ grate area	27.4

I. C. C. Issues Questionnaires for Rate Structure Investigation

WASHINGTON, D. C.

QUESTIONNAIRES calling for detailed information concerning the rate structures and the origins, destinations and trends of movement of traffic which is not now before the commission in an available form have been sent to the railroads by the commission for its use in connection with its general rate structure investigation, Docket No. 17,000, under the Hoch-Smith resolution. They are to be filed with the commission not later than October 27. The form of the questionnaires, which are intended to give the commission better information than is now available as to the relative rate levels on different commodities in different parts of the country, has been under consideration for some time and the commission has held conferences on the subject with committees of legal, traffic and accounting officers.

The notice sent out by the commission with the questionnaires describes them and gives instructions for their use in part as follows:

Questionnaires have been prepared for the submission by territories, or groups, of origin and destination of the information now required by the commission. While respondents may employ such means as they may deem proper for the assembling of the information called for, it is desired that a single consolidated report be made to the commission by the carriers operating in each group, and that, to the extent practicable, additional separate reports be made by individual carriers in each group. Collaboration between the various groups of carriers will be necessary for the assembling of some of the information, as for example information concerning combination rates and accessorial services on traffic from group to group.

The groups for which reports are requested are 15 in number —12 within the United States, 2 for Canadian traffic, and 1 for Mexican traffic. The groups are as follows, and their boundaries are described in Question 4 of the attached questionnaire:

New England territory, trunk line territory, central territory, Mississippi Valley territory, North and South Carolina and southern Virginia, southern Florida, all remaining southern territory, western trunk line territory, southwestern territory, intermountain territory, north Pacific Coast territory, south Pacific Coast territory, eastern Canadian territory, western Canadian territory, Mexican territory.

Two forms of questionnaire are provided: Form No. 1 for reporting as to commodities which are not customarily accorded transit, which is to be executed by the originating carriers; and Form No. 2 for reporting as to commodities which are customarily accorded transit, which is to be executed by the delivering carriers.

The carriers operating in each of the 12 groups within the United States are requested to execute for their group a separate Form No. 1 questionnaire for each of the following commodities: Cattle, gasoline (except casing head), automobiles, bar iron; and to execute for their group a separate Form No. 2 questionnaire for each of the following commodities: Wheat, potatoes, hay, lumber (other than hardwood), lumber (hardwood). These questionnaires shall be executed and filed with the commission in duplicate at the earliest practicable date, but not later than October 27, 1926.

In addition to executing the questionnaires above required, the carriers, individually and as a whole, operating in each of the 12 groups within the United States are requested to prepare a list of the 25 non-transit commodities which, from the revenue standpoint, are believed to be the most important *originating* within the particular group, and to prepare a separate list of the 8 transit commodities which, from the revenue standpoint, are believed to be the most important *finally delivered* within the particular group, the commodities to be listed in their general order of importance as far as practicable. To a certain extent the foregoing sentence is modified by the next succeeding paragraph hereof. It is desired that the carriers within the United States also collaborate and compile lists of the non-transit commodities, if any, imported from Canada and Mexico in such volume that the traffic therein is believed to be of sufficient importance from the revenue standpoint to class it with the traffic in the domestic commodities listed. Three such lists, one each for eastern Canada, western Canada and Mexico, should be compiled. The commodities thus listed by the various groups will, of course, differ somewhat. Commodities on which the execution of questionnaires is now being required may or may not appear in these lists. Traffic received either directly or indirectly from boat lines and which is not identified as having had previous rail transportation by United States rail carriers, including import traffic, should be regarded as originating at the port of entry. By "finally delivered" is meant where the transportation, from the tariff standpoint, has ended, and will not be regarded as a portion of a transportation, the next portion of which will be connected up with this portion by reason of a tariff offering transit arrangements. By "non-transit commodities" is meant such as do not customarily receive transit; by "transit commodities" is meant such as customarily receive transit, diversion, or reconsignment. In deciding upon the commodities to be listed by the several groups it is desired that respondents collaborate, in order that like commodity descriptions may be used where two or more groups list the same general commodity, and in order to determine which commodities will be considered as customarily receiving transit so that the classification of a particular commodity as transit or non-transit will be uniform in the various lists.

It will be recognized that there are certain commodities which may be said to be controlling (using that word in a modified sense) from the rate standpoint, in that the rates thereon either control or exert great influence upon the rates on other commodities which compete therewith, or which are manufactured therefrom, or which are varied forms of the controlling commodity, etc. For example, and speaking of rates thereon in general, lumber is a controlling commodity, and the rates on timbers, ties, piling, poles, and many articles manufactured from lumber are largely influenced or completely controlled by the rates on lumber. Other examples might be wheat as controlling or exerting great influence on rates on other grains and on grain products; cattle as affecting the rates on other livestock and possibly on fresh meats; and bituminous coal as affecting the rates on other coal and on coke. It is desired that in selecting the commodities to be listed respondents bear this in mind and as far as practicable select commodities which may be considered as controlling commodities. Thus if both bituminous coal and coke are regarded as among the most important non-transit commodities originated in a particular territory, and if the rates on coke are largely controlled or greatly influenced by the rates on bituminous coal, it is desired that bituminous coal alone be listed. In such case coke would not be counted in the prescribed number of commodities to be listed; that is, 25 commodities exclusive of coke should be listed. To the extent indicated in this paragraph the paragraph next above is modified. These lists of commodities shall be filed with the commission at the earliest practicable date but not later than October 27, 1926.

THE CENTRAL VERMONT has issued a 9 in. by 12 in. booklet "Picturesque Vermont—the Switzerland of America," which contains 64 pages of illustrations and descriptions of the historic territory served by the road. The pictures are large and well chosen for pictorial values. In addition, the booklet contains several maps showing the Central Vermont lines and connections. The publication is not for free distribution, but may be had for 25 cents a copy by applying to E. C. Drake, district passenger agent of the railroad, 505 Fifth avenue, New York.

Signal Section Meets in Los Angeles

Standardization of highway crossing signals, train hours saved by signals and economy of remote control switches, among subjects discussed

THE Signal Section, American Railway Association, held its regular stated meeting at the Hotel Ambassador, Los Angeles, Calif., on September 7, 8 and 9, with an attendance of 370 members and guests. A. H. McKeen, signal engineer, Union Pacific System, chairman of the Signal Section, presided. In addition to the presentation and discussion of 10 regular and one special reports, the program included several papers.

At the opening session D. W. Pontius, vice-president and general manager, Pacific Electric Railway, gave an address welcoming the convention to Los Angeles and inviting the members to make various trips on the Pacific Electric. He stated that although serious accidents continue to occur, a passenger on an American railroad is safer than pedestrians on the streets of the average city.

Report on Economics of Railway Signaling

The committee on the Economics of Railway Signaling, B. T. Anderson (C. & O.), chairman, presented reports on: (1) operators released and train hours saved following the installation of signals; (2) economy of remotely-operated switch installations; (3) suggestions for the preparation of and presentation of reports on economic signaling subjects, and (4) economy of replacing crossing watchmen with highway crossing flashing signals during a five year period.

OPERATORS RELEASED AND TRAIN HOURS SAVED FOLLOWING INSTALLATION OF AUTOMATIC SIGNALS

Road	Railroads Miles of Track S.T.	D.T.	3T.	4T.	Total	Operators Released	Train Hours Saved
1	52				52	9	*
2	107				107	22	*
3	21				21	8	1894
4	40				40	12	1460
5		2.41			4.82	0	756
6		67.3			134.6	5	16047
7	79				79	*	10844
8	100.4	15.3			131	*	7900
9	139				139	23	*
10			6.8	111.4	466	57	96000
11	82				82	8	5989
12					148.2	23	13399.15
13	42				42		5904
14	66				66		9442

*Unknown.

Nine of the 14 railroads on this list report that operators have been released following the installation of automatic signals. In three of the 14 cases there were no changes in the number of operators by the use of automatic signals. Eleven of the 14 railroads report a saving in train hours, ranging from less than 800 to over 16,000 following the installation of automatic signals.

ECONOMY OF ONE REMOTELY-OPERATED SWITCH AT END OF DOUBLE TRACK IN SERVICE MAY 28, 1925

DETAILS

1. Number of switches	1
2. Number of signals	5
3. Number of operated units	8
4. Approximate cost	$11,607.00
5. Cost per unit	1,451.00
6. Actual number of westbound trains passing over switch in 65 days	631
7. Actual time saved per train in minutes	10
8. Estimated cost of saving in time 65 days	$612.15
9. Estimated cost of coal saved (½ ton @ $3.50)	$1,102.50
10. Total saving in 65 days	$1,714.65
11. Saving per year	$9,628.34
12. Actual cost of maintenance and operation per year	$1,258.00
13. Per cent on the investment	72
14. Based on $18 per train hour, saving per year would be approximately	$10,500.00

15. Advantages of remote control:
  (a) Saving in time per train.
  (b) Saving in coal used per train.
  (c) Additional safety of operation.
  (d) Economical operation.
  (e) Note that saving is based on westbound trains as switch is set normally for eastbound traffic. Delays to westbound trains waiting for eastbound trains to clear the switch are not included.
  (f) Saving due to wear and tear on equipment account of elimination of train stops is not included.

Conclusions

It was estimated, when A.F.E. forms were prepared, that this installation would cost $12,000 and show a saving of $1,800 per year. The first cost was slightly under the estimate and the saving was over five times the first estimate.

The first cost appears high, but the cost per unit is about the average amount. The track layout is the usual one at the end of double track, with one switch, and no derail. There are three home and two distant signals, all of the color light type.

The remotely-operated switch is about 3,500 ft. from the operator's cabin. Trains in this territory are handled by manual block rules. The operation of the switch has been satisfactory. With approximately 9,000 train movements per year there have been five cases of signal interruptions, of which three cases were due to dragging equipment.

ECONOMY OF REPLACING CROSSING WATCHMEN WITH HIGHWAY CROSSING FLASHING SIGNALS DURING FIVE-YEAR PERIOD ENDING DECEMBER 31, 1925

(a) Total number of crossings equipped	42
(b) Number of watchmen removed from duty by installation of crossing signals	93
(c) Average number of watchmen removed per crossing	2.21
(d) Actual cost of installation	$71,170.45
(e) Average cost per crossing	$1,694.53
(f) Savings accruing by elimination of watchmen's wages and cost of crossing watchmen's housings	$89,502.55
(g) Estimated cost of maintenance and operating expense, also interest at 6 per cent, depreciation at 5 per cent and taxes at 2 per cent	$18,444.13
(h) Estimated annual saving. (not including any savings resulting from prevention of accidents)	$71,058.42
(i) Net profit yield on the investment (not including interest charge)	99.8%

Note: (a) Except where crossings are protected by watchmen 24 hours per day, it is considered an asset in protection to eliminate the watchman and put in flashing signals that are operative 24 hours per day; thus we obtain a tangible benefit that cannot be expressed in monetary value.

Note: (b) It will be noted that where two watchmen may be removed from a crossing under average conditions the investment will yield a net profit of nearly 100 per cent.

Discussion

When presenting the report the committee chairman explained that the saving made by the crossing signals, shown in the table, was all on one road. Representatives of the New Haven and the New York Central stated that state commissions in New England were of the opinion that the flashing light crossing signals were far safer than watchmen or gates; the gates are being replaced by flashing lights extensively. J. A. Peabody (Chicago & North Western) stated that that road had replaced gates with wig-wag on crossings where gates could not be used successfully because of heavy automobile traffic

of over 7,000 cars per day. The gates could not be lowered between cars and the wig-wag gives better protection.

When discussing spring switches, representatives of the Union Pacific, Santa Fe, Chicago & North Western, Northwestern Pacific and others reported satisfactory results at the end of double track and passing tracks where automatic signal protection is used, showing an annual saving in operating expense up to $3,000 in one case, and $5,000 in another, where operators or switch tenders are eliminated. The use of the oil-pot prevents excessive wear of the switch point. A spring switch at one place on the Chicago & North Western permitted an increase in the ruling tonnage of 600 tons per train. W. T. Quirk assistant general manager of the Santa Fe, reported satisfactory operation of spring switches for 10 years with no trouble except in three cases where the train was backed up before completing movement. Spring switches are not designated by a special mark, but are covered by special rule in the timetables.

Special spring switch apparatus costs about $290 when automatic signals are already provided and which are considered as necessary protection.

Chairman Anderson presented an illustrated paper explaining new single track signaling on 125 miles from Orange, Va., to Clifton Forge, which includes new methods of signal indication at passing sidings and on grades tending to reduce train stops. Signals are located according to time spacing, rather than distance. When discussing this paper, C. F. Stoltz (Big Four) explained new 90-mile single track signaling with no signals for leaving the passing track, stating that no train was authorized to leave the siding without permission by 'phone from the dispatcher. On this installation automatic block signal rules are the same for single track as for double track. In other words the stop and proceed rule applies to all automatic signals. Chairman Anderson stated the general tendency is to eliminate the train stop at automatic signals.

Report on Highway Crossing Protection

The committee on Highway Crossing Protection, A. H. Rudd (Pennsylvania), chairman, presented two drawings of highway crossing signals, one the flashing-light type and the other the wig-wag type.

Official action by the section was taken at the 1926 annual meeting where it was voted that, "It is the sense of the Signal section that no devices, lights, markers or signs other than those provided in the requisites, be placed on the signal which has been adopted as recommended practice for indicating the approach of trains," it being understood that this referred to the signal mast and not to the foundation. Questions have been raised as to the meaning of the word "devices," and the thought expressed that they might be considered to include relay boxes, bells, etc. In order to obtain official action, the committee presented the following:

Resolved: Signals of the flashing light type and of the wig-wag type are standard highway crossing signals; either one or the other may be used, but both should not be used on the same mast.

Resolved: That no lights, markers or signs, other than those provided in the requisites, should be placed on the highway crossing signal which has been adopted as recommended practice for indicating the approach of trains, except the standard highway crossing sign, which, under the requisites, is to be mounted on the same mast.

In the report on federal and state activities it was stated that: (1) Illinois has approved the A.R.A. specification for automatic signals indicating the approach of a train; (2) the Kentucky legislature has recently passed an act requiring automobiles to come to a complete stop before crossing a railroad crossing, and (3) while the Public Service Commission and the State Highway Department of Pennsylvania have approved the A.R.A. requisites for signals to be used for indicating the approach of a train, the method of marking crossings of railroads and state highways where such signals are not provided, is still under discussion.

The Code on Colors for Traffic Signals was approved by the Sectional Committee and by two of the sponsors, namely, the National Safety Council and the Bureau of Standards. The third sponsor, the American Association of State Highway Officials, has not yet advised as to its action. The American Engineering Standards committee will not take action to approve the code until all reports are received.

Discussion

In the discussion of drawings of highway crossing signals the desirability of mounting the banner low enough to be in the line of vision of the automobile driver was explained, as also was the necessity for securing the proper height to clear truck loads. A six-foot height for the center of road signal and 14 ft. for the side of road were suggested as standard distances from road to banner. Caution was given that railroads should not install the highway signal in the center of the roadway without proper order from the city government, relieving the railroad from responsibility for damages from those running into it. The center of the road mounting should not be used in streets less than 26 ft. wide. The resolutions in the report were approved for presentation at the annual meeting.

Report on Signaling Practice

The extensive use of light signals instead of semaphores has brought the opportunity to simplify signal indications, especially at interlocking plants where two or more routes may be taken.

The committee on Signaling Practice, F. B. Wiegand (N. Y. C.), chairman, has given consideration to the color light signal aspects in the proposed revision of the standard code of the American Railway Association and to the various aspects in use on the various railroads and submits recommended aspects covering the color light signal, position light signal and color position light signal. The committee is also recommending requirements and requisites which apply to the three types of light signals.

The committee's attention was called to the paper read before the Institution of Signal Engineers by W. J. Thorrowgood, signal superintendent, Southern Railway of England, on February 26, 1926, published in The Railway Gazette (London) March 5, 1926, in which he calls attention to the fact that under the present system of signaling, an engineman has to, in many cases, pass a red light, that various systems of speed signaling have been proposed and, in some cases, adopted in America; that the number of aspects necessary to give the desired information to the driver are so many as would be likely to confuse him.

The committee sees no objection to having one or more red lights displayed by a signal, the indication of which is that train may pass the signal. The conclusion with respect to this is as follows:

1. It is desirable, where two lights are displayed other than red, that they be of different color in order to more clearly distinguish the color of the light giving the indication.

2. It is desirable, in case one of the two or more lights are out, that the light or lights displayed shall be those giving the most restrictive indication that can be given by that signal.

3. Experience has demonstrated that no sound objection has been raised to the display of red lights in the signal aspects prescribed by the standard code.

4. No system of color light signal indication has yet been proposed, which provides for the use of a restricting color signal which meets all requirements as well as the red light.

Light Signal Requirements and Requisites

The aspects shown were typical, each railroad to show the aspects appropriate for the signals which it uses.

REQUIREMENTS

Practice in reference to the following may be adopted as prepared by each railroad:

1. Spacing of light signal units.
2. Red or purple for "stop" indication for color light dwarf signal.
3. Location of lights to the right, left or center of the signal mast.
4. Stagger of lights.

REQUISITES

1. Signals whose most restrictive indications are more favorable than "stop" must be numbered.
2. Automatic signals which display a "stop then proceed" indication may be equipped with a prescribed letter to permit the signal to be passed by a train without actual stop, proceeding at slow speed prepared to stop short of train or obstruction.
3. Signal aspects shall not be used for the display of more than one indication.
4. Manual block signals must be distinctively marked.
5. Special signals not included in the book of rules must be prescribed by special instruction.
6. A dwarf signal must not be used as a block signal unless prescribed by a special instruction.

The report was accepted for discussion.

Discussion

The progressive report of the committee in attempting to establish standard indications for light signals, met with extensive discussion and suggestions. J. C. Mock (Michigan Central) stated he was of the opinion that the English idea of not passing a red light was creditable and that some other European practices were of merit also, and that our method of signaling with speed as the basis was wrong. Various members suggested changes in drawings that were accepted by the committee, but no material changes in the requisites were considered necessary.

Other Reports of Importance

A complete set of instructions for inspecting and testing direct current relays, including forms for recording readings, was given in the report of the Committee on Instructions, of which J. S. Gensheimer (Penna.) is chairman. A revised set of instructions for maintaining and handling dry cells was given in the report as was also an alphabetical list of definitions for technical terms used in signaling, up to and including terms beginning with "G." These reports were approved for presentation at the annual meeting.

Excellent progress was reported on the preparation of a book on signaling intended especially for the training of employees. A preliminary draft of several of the chapters of this book was presented with the report of the committee among which were: Chap. I, Historical; Chap. II, Symbols, Aspects and Indications; Chap. V, Batteries; Chap. IX, A. C. Relays and an outline for Chap. IV, Economic Phases of Signaling. This material was accepted for discussion.

During the last few years several roads have been installing automatic interlocking plants at railroad grade crossings, consisting of signal protection without derails, all controlled automatically and giving adequate protection to eliminate the necessity for train stops, without the cost for towermen's wages. The committee on Power Interlocking, F. W. Pfleging (U. P.), chairman, included in its report automatic crossing protection circuits at railroad crossings using either operative or inoperative approach signals. Revised specifications for the installation of electric interlocking systems were also submitted for discussion.

In discussing automatic signals for railroad grade crossings C. A. Mitchell, division superintendent of the New Haven, stated that this means of reducing operating expenses appealed to him and that as chairman of the Rules Committee of the American Association of Railroad Superintendents, he would be pleased to bring the attention of operating officers to this new development in signaling. The members reported over 30 automatic plants in service on several roads in different states and in Canada, all of which were approved by the state railroad commissions. Minnesota requires a smash board in addition to home signals and Texas was the only state mentioned as refusing to approve the installation of automatic signals at crossings without derails. For simple railroad crossings the automatic layout will make an annual saving of approximately $5,000, as compared with interlocking with towermen on duty 24 hours a day (three tricks).

Better Fouling Protection Studied

It is quite evident from the various reports of inspections of different train control installations that the Bureau of Signals and Train Control Devices of the Interstate Commerce Commission is not satisfied with the degree of safety secured by the method of shunt fouling protection used on the majority of roads. A joint committee, including the members of the two committees on both a-c. and d-c. signaling, submitted a special report on this subject, as follows:

The committees are of the opinion that the observance of A.R.A. Standard Code Rule 511 provides sufficient protection for movements of light engines or cars through main track crossovers in automatic block signal territory; however, they are of the opinion that additional protection is desirable. Rule 511 reads:

Rule 511—Before a train crosses from one main track to another, or from other tracks to a main track, the switch on the track occupied by the train must be thrown first, and neither cross-over switch must be closed until the train is entirely clear of the cross-over track.

The report included six drawings showing recommended methods of insulating and wiring turn-out and cross-over layouts, which were approved for presentation at the annual meeting in March.

Performance Reports on Operation

Operating officers are primarily interested in the performance of signals, interlocking and train control equipment. As a means of providing a comparative record of the performance of such apparatus with reference to train movements, the committee on Performance Records prepared and presented for discussion a set of forms, several of which have been used successfully on different roads. Among these forms shown in this report are: (1) Record of Signal Performance; (2) Conductor's or Engineman's Telegraphic Report; (3) Despatcher's Telegraphic Report; (4) Maintainer's

Report; (5) Signal Report Blank; (6) Automatic Train Control Performance Report, and (7) Automatic Block Signal and Train Control Report.

Many of the basic principles of design of mechanical interlocking have been used for years. However, certain minor improvements are being made from time to time requiring a revision of the specifications. The committee on Mechanical Interlocking has been working on such a revision, several portions of which were presented for approval.

The committee on Designs submitted revisions of the specifications on hand lantern globes and one-inch welded steel pipe, six revised drawings and four new drawings covering hand lantern globes and details of locking for S. & F. interlocking machines.

Solutions for the practical maintenance problems of automatic signals are being sought by the committee on D.C. Signaling, which presented a report including requisites for reducing lightning trouble on d-c. track circuits, and requisites for reducing foreign current trouble and also for the prevention of sweating of relays and signal mechanisms. The report also included a new specification for a d-c. vibrating highway crossing bell and a progress report on a study of operating characteristic of d-c. relays.

General Foremen Meet at Chicago

THE International Railway General Foremen's Association met at the Hotel Sherman, Chicago, for the 20th annual convention on September 8 to 10, inclusive, 1926. Addresses were delivered by E. L. Woodward, western mechanical editor of the *Railway Age;* L. C. Dickert, superintendent of motive power of the Central of Georgia; D. C. Curtis, chief purchasing officer of the Chicago, Milwaukee & St. Paul; F. H. Becherer, superintendent car department of the Central Railroad of New Jersey, and M. A. Hall, superintendent of machinery of the Kansas City Southern. During the seven sessions of the convention papers were presented and discussed on the subjects: Balancing Shop Sub-Departments in Locomotive and Car Departments; Development of the Mechanic; Maintenance of Refrigerator Cars; The General Foreman's Responsibility for Material Surplus or Shortage; Developing Railroad Shop Foremen; and Modern Shop and Equipment as a Factor in Increased Production.

In discussing the possibilities of the General Foremen's Association Mr. Woodward emphasized the necessity of stabilizing employment and the improvement over the present common system of daily wage payment in order to increase shop efficiency. He also pointed out the necessity of more accurate cost data in locomotive and car shops in order that those responsible for shop operations may have an intelligent basis upon which to make a comparison of present efficiency with past performance. In this connection it was pointed out that until such time as labor records are kept on a man-hour basis it will hardly be possible to establish an equitable basis of comparison.

Mr. Dickert, in speaking on the development of the mechanic, discussed in some detail the relative merits of the system used on many roads today to train mechanics, namely, as regular apprentices, helper apprentices or trained specialists. He was emphatic in pointing out that the railroad man of the future must of necessity have a liberal education not only in the practical side of railroad work but in the broader phases of administration in order to fit him to step into higher executive positions later. He discussed the co-operative plan put into effect some time ago by the Central of Georgia in which the apprentices of that road spend part of their time in a technical school acquiring a knowledge of technical theory and the remainder of the time in the performance of practical work in railroad shops. He expressed a preference for the co-operative plan as compared with the regular plan of apprentice training insofar as the mechanical student is concerned because of the opportunity to combine the practical experience with technical training. He also pointed out that an important feature of the co-operative plan is the fact that the boys who are enrolled under this plan come in daily contact with fellow employees who have not had the opportunity of obtaining a college education and in this way these men gain through contact an education which would otherwise be denied them. In summing up his talk, Mr. Dickert said, "All other things being equal, the technically educated man has the advantage, for he has the knowledge and experience and is independent of others in working out the many problems encountered from day to day. Too large a class of young people in America are seeking pursuits not requiring manual labor. Their education as given at present in the high schools and colleges tends rather to unfit them for the industries in this country where the best resources of nature are waiting for willing and trained hands to utilize them. The American boy with his inborn ambition and natural ingenuity would cease to regard manual labor as drudgery if his hand and mind together were industrially trained through the school period.

Election of Officers

The following officers were elected to serve during the year 1926-27: President, C. A. Barnes (Belt Railway of Chicago); first vice-president, F. M. A'Hearn (Bessemer & Lake Erie); second vice-president, J. N. Chapman (Illinois Central); third vice-president, C. F. Bauman (Chicago & North Western); fourth vice-president, J. H. Armstrong (A. T. & S. F.), and secretary-treasurer, William Hall.

The Dixie Flyer at Dalton, Georgia
Nashville, Chattanooga & St. Louis

Motor Transport Investigation

Hearings held in Detroit and Boston—At latter point steam roads give first extended testimony

THE expected difference of opinion as to the necessity for the regulation of buses and trucks as common carriers of passengers and freight developed at the hearing of the Interstate Commerce Commission in its motor transport investigation at Detroit, Mich., beginning September 1. Commissioner Esch, who presided at the Chicago and St. Paul hearings, resumed his duties as the chief investigator at the Detroit hearing, assisted by Examiner Flynn.

The case for the railways was presented by the electric railways, the steam roads taking little part in the proceedings.

Harry Reinelspach, secretary of the Electric Railway Association of Ohio, testified as to the comparative size of the electric and bus transportation systems in the state of Ohio. "Electric line mileage is 2,169," he said, "and bus line mileage, 9,000." Mr. Reinelspach estimated that 75 per cent of the bus lines are in direct competition with railway or interurban lines. He testified that the state of Ohio regulates the intrastate bus and truck operators and held that it is unfair that interstate operators should be unregulated. The unregulated lines, he pointed out, carry insurance on passengers and freight only at their own discretion.

L. G. Tighe, assistant general manager of the Northern Ohio Power & Light Co., said that prior to 1921, when trucks and buses came into common use, his company had operated at a profit. Since that time operations have been carried on at a loss, he said. The Northern Ohio Power & Light Co., now operates both buses and trucks. "Interstate vehicles should be regulated," said Mr. Tighe, "for the same reason that regulation is imposed upon other modes of transportation, and for the same reason that intrastate lines are regulated."

Regulation Opposed

Opposition to the regulation of motor trucks operated interstate as common carriers by a federal agency was opposed on the second day of the hearing by John L. Lovett, general manager of the Michigan Manufacturers' Association. He testified that there is no demand on the part of shippers for such regulation. He testified that the association, which claims to represent 90 per cent of the capital and industrial production of Michigan, gathered statistics from 150 of its larger members, which revealed that 26.7 per cent of all their inbound and outbound freight now moves solely by motor truck. Of the aggregate annual shipments of 677,795,268 lb. of freight moved by truck, approximately 16 per cent is interstate business.

Regulation of buses was favored by Mr. Lovett. As a means of overcoming the difficulty of regulating the contract carrier motor truck, Mr. Lovett suggested that there should be included in the Michigan statutes a provision for the limitation of contracts held by a contract trucker to not more than five. Any truck operating under contract with more than this number of clients, he suggested, would automatically become a common carrier, subject to the regulation imposed upon common carriers.

The imposition of a "prohibitive tax" on buses and trucks for the use of the highways was declared in Mr. Lovett's testimony to be a "distinct menace." He declared that the truck as such should not be penalized because it uses the highways any more than passenger cars are penalized.

Considerable opposition to the regulation of motor trucks developed at the hearing on September 2. A. P. Mills, traffic manager of the Michigan State Farm Bureau, credited the motor truck with the great growth of the dairy and farm industries and said that his organization felt that while some regulation of interstate trucking might be needed in the near future, it should be directed exclusively at the common carrier and should not include the privately operated truck used by the farmer for the handling of his products.

A similar viewpoint was taken by C. S. Long, traffic manager of the Ohio Farm Bureau Federation, who testified that he believed that uniform state regulation of motor trucks was preferable to federal regulation. He suggested that the United States Bureau of Public Roads study the formation of standards for truck sizes, weights and specifications, and that the results of this study and the recommendations of the Interstate Commerce Commission be submitted to the various state legislatures to assist them in the passage of uniform regulatory laws.

A directly opposite view was taken by W. A. Slater, traffic manager of the Grand Rapids Association of Commerce. Mr. Slater insisted that the time had come for federal regulation for the protection of the shipping public and the future development of highway freight transportation.

Ralph Tuttle of the Holland, Mich., Chamber of Commerce, urged not only regulation of common carrier trucks, but also all privately owned trucks. Little was said with regard to regulation of motor buses, since the general sentiment was that all possible safeguards should be thrown about passengers carried on the highways. There was no open objection to federal control of the interstate bus lines.

The hearing adjourned on September 2, to be resumed at Boston, Mass., on September 8.

The Boston Hearing

The effect upon the rail carriers, both electric and steam, of the steadily growing use of the motor truck and bus was discussed with considerable frankness by the New England railroads at a hearing in Boston on September 8 before Commissioner John Esch and Examiner L. J. Flynn of the Interstate Commerce Commission.

But thus far in the hearings the railroads themselves have been presenting a minimum of testimony relying on the answers to the commission's questionnaire to state their case. At the hearings in Boston, both the Boston & Maine and the New Haven systems presented the data to the public at the hearing through the several witnesses offered.

B. & M. Lost One-Fifth of Its Passengers

Presenting the facts as to losses of railroad riders and revenues on interstate lines where motor buses are operating without regulation, Howard F. Fritch, passenger traffic manager of the Boston & Maine and president of the Boston & Maine Transportation Company,

testified that the Boston & Maine had lost 44,585 passengers,—or almost one-fifth of its riders,—between Boston and Nashua, N. H., and Boston and Manchester, N. H., in the year from September, 1924, to September, 1925. This represented an annual loss in revenue of $78,500 on this line alone, he said, adding that similar bus lines under no regulation and with no permits are also taking travel from trains on two other principal routes.

The witness said that on intrastate lines, which are now subject to the regulation of state commissions in each of the New England states, the commissions in the past two years have almost invariably refused to grant certificates to competitive buses where the rail service was adequate, or where the railroad was ready to provide necessary bus service.

Motor coach service in co-ordination with, or supplementary to, the railroad schedules, is now being maintained by the Boston & Maine Transportation Company, on routes aggregating 610 miles, Mr. Fritch testified. The Boston & Maine is operating a total of 56 buses, he said, the first of which was placed in service in 1924.

The Boston & Maine feels that its bus operations and those of independent operators alike—interstate as well as intrastate—should be subject to formal certificate, and should be regulated in the public interest as to both fares and service, according to the railroad's spokesman. Mr. Fritch continued:

> The average length of passenger ride on the Boston & Maine Railroad in 1925 was 19.77 miles, and this short average haul makes the railroad particularly susceptible to motor competition. The number of passengers carried fell off 22.9 per cent between 1921 and 1925. This was not caused by an excessive curtailment of rail service, as train miles decreased only 3.9 per cent.
>
> While the private automobile is a big factor, the bus has had no small part, and although intrastate operations are now well regulated in this territory, the fact that the Boston & Maine Railroad's 2,000 miles of road are in five different states, makes possible the operation of both bona fide and artificial competitive interstate lines on a rather large scale. By an artificial interstate line, I mean one which is really intended to serve communities all in one state, but which to avoid state commission regulations, makes the inconsequential detour into another state. Such a route now operates the length of Massachusetts from Boston to Albany. Without local licenses and a certificate from the Massachusetts Department of Public Utilities, no local business could be legally done in Massachusetts. About midway of the state, however, a detour is made through Rindge, N. H., a village of 643 people just across the state line, an arrangement under which passengers are being carried between all points in Massachusetts west of Rindge and all points east of Rindge.
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> At the present time four important independent interstate bus routes are being operated without any certificates in competition with the Boston & Maine; Boston to Manchester, N. H., via Lawrence, Mass.—Boston to Nashua and Manchester via Lowell, Mass.—Boston to Portland, Me., with two independent operators —Boston to Albany, N. Y., via Rindge, N. H.
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> The two Boston to Manchester operations present the most serious competition. It is 39 miles from Boston to Nashua, and 55.7 miles from Boston to Manchester. There are 12 trains a day in each direction between Boston and Nashua, and 13 between Boston and Manchester, ample service, and fast. Buses first began operating on this run in the fall of 1924. From that time to date there have been from one to three independent operators in the field all the time, diverting riders from the trains, under no regulation.
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> In the twelve months ending September, 1924, which represents the year before the buses started operating, 150,414 railroad card tickets were sold between Boston and Manchester, or return. In the next twelve months, the sales amounted to 124,433; and between Boston and Nashua, 82,617 tickets were sold in the first period, and 64,013 in the second. These two stations together thus showed a decrease of 44,585 riders in a year, or 19.1 per cent; a loss in revenue to the Boston & Maine Railroad of $78,500. The railroad fare from Boston to Manchester is $2.02; the bus fare has ranged from $1.75 to as low as $1.00.
>
> The Boston & Maine Transportation was formed in the fall of 1924 for the purpose of carrying on motor operations auxiliary to the railroad. Studies were made to determine where buses might be used to make the railroad more useful to the communities served, and to assist the railroad in operating more economically and more efficiently. Buses have since been used to supplement steam service and to replace unprofitable steam service.
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> The Boston & Maine Transportation Company, last summer, and again this summer, has operated a bus service between Boston and Portland, Me., and between Boston, and the White Mountains in New Hampshire; and also, since last fall, a line between Boston and Manchester, N. H. In the case of the Portland and the Manchester routes, the Boston & Maine Transportation Company is operating motor coaches in competition with independent interstate bus lines.

A loss of $4,786,108 by the Boston & Maine in freight revenues from less-than-carload shipments last year as compared with 1921,—attributed almost entirely to the unregulated operation of motor trucks,—was testified by Frank I. Hardy, asssistant to the chairman of the Boston & Maine and treasurer of the Boston & Maine Transportation Company, in describing motor truck operations paralleling the railroad's lines. Mr. Hardy presented figures showing that while the road's carload tonnage had increased 21 per cent in that period, the losses in l. c. l. shipments amounted to 35.3 per cent.

In reciting the results of a survey of truck traffic on three principal highways (Boston-Lowell, Boston-Lawrence and Boston-Portland), the witness said it was found that no more than 2,000 tons a day, or 250 average carloads of l. c. l. freight, was moving over these roads in trucks in competition with the railroad. This would be the equivalent of diverting from the railroad daily on only three highways 7 to 10 freight trains of 50 to 35 cars each, or of one freight train approximately four miles long.

"In 1921," he said, "the carload tonnage handled by the Boston & Maine Railroad was 18,060,952 tons; in 1925 the carload tons amounted to 21,854,939, a gain of about 21 per cent. Less-than-carload tons handled by the Boston & Maine in 1921 were 1,999,658, while in 1925 the l. c. l. tons were 1,718,838, a decrease of 14.3 per cent.

"If l. c. l. tons had increased in the same ratio as the carload tons from 1921 to 1925 the tonnage increase of l. c. l. traffic over 1921 l. c. l. traffic would have been 419,928 tons. With the actual decrease of 280,820 tons, this places the loss in l. c. l. tonnage at 700,748 tons, or 35.3 per cent. As the average revenue per ton for local l. c. l. freight on the Boston & Maine is $6.83, the loss in l. c. l. freight in 1925 as compared with 1921 represents $4,786,108 of revenues.

The passenger phase of bus competition against the New York, New Haven & Hartford was discussed by Francis Coley, passenger traffic manager of the road. According to this witness the New Haven system is opposed by 125 competing bus lines of which 7 intrastate are in New York; 42 in Connecticut; 7 in Rhode Island and 26 in Massachusetts, or 82 intrastate lines, plus 43 interstate lines. These lines are scheduled to operate a total seat mileage of 1,011,829. The average distance of all the bus lines is about 34.40 miles. Competitive passenger mileage per annum amounts to roughly 92,440,388. The witness estimated that revenue loss to the system from bus competition would be $3,327,852. Total loss of revenue due to the automobile, both private and bus, he estimated at $27,899,287.

G. M. Phillips, president of the New Hampshire Farm Bureau Federation and a director of the American Farm Bureau Federation, asked that the farm truck used by the farmer in his own business and partially by his neighbors be not classed as a carrier or be placed under federal regulation. He urged regulation of the motor vehicle through the medium of state rather than national regulatory bodies.

J. J. Phillips, vice president of New England Transportation Company, the motor coach subsidiary of New

Haven railroad, told the commission of bus competition of the "illegal" operator as a prelude to formation of his company. The New England Company, now operates 41 bus routes, he said, covering 1,059 miles. Equipment comprises 160 buses, 10 service cars and 2 trucks. Its operations are showing a profit and currently more than 265,000 passengers per month are being carried.

This witness held that when bus service is demanded by a community, the road serving that community should be given first opportunity of establishing such service before independent operators are given the privilege.

Under cross-examination this witness admitted having established for his company a bus service between Boston and Providence when two independent companies were already giving service. This move was for the purpose of regaining the business lost by the New Haven's steam lines when the competing coach services were inaugurated, he explained.

Representatives of the New England Traffic League (comprising chambers of commerce and business establishments), advised the commission, after a survey of the League's membership, that 58 per cent of the shipper members used trucks in interstate business, while 40 per cent used trucks entirely in intrastate business. It was brought out that 33 per cent of the manufacturers in this survey own or operate their own trucks, while 33 per cent of the balance employ common carrier trucks exclusively.

The street railway end of the picture was shown by Alonzo R. Williams, counsel for United Electric Railways Company of Rhode Island. He told the commission that as Congress, which has supreme control over the Interstate Commerce Commission has enacted no law regulating interstate commerce over the highways by motor vehicles, and as the states are powerless to regulate such commerce even in the absence of a federal law, that this commerce is carried on and can be carried on by as many as desire whatever their character and responsibilities, free from control as to routes, fares, schedules, public convenience, necessity, comfort or safety. He told of attempts to tap territory between Providence, Warren and Bristol in Rhode Island by running through a sparsely settled area in Massachusetts and thus creating an interstate route.

The hearing was continued in Boston on September 9 and moved to New York on the 10th.

Hearing on Application of Reading to Lease L. & N. E.

WASHINGTON, D. C.

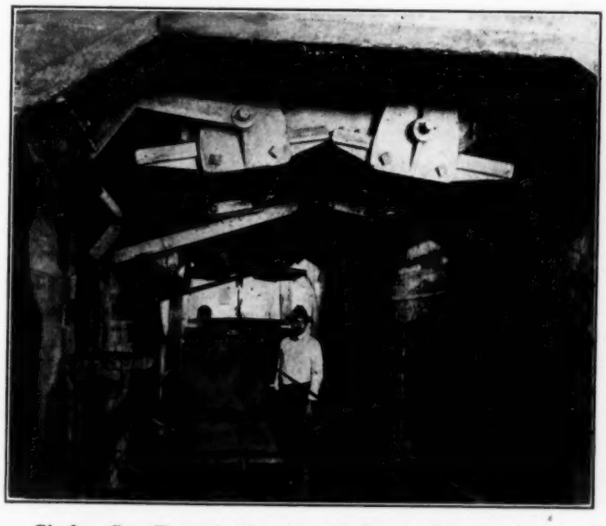
HEARING on the application of the Reading Company for authority to lease the Lehigh & New England for 999 years, at a rental of $1,069,000 a year was begun on September 8 before C. V. Burnside, assistant director of the Bureau of Finance of the Interstate Commerce Commission. The lease is being opposed by the Pennsylvania, which contends that the road should be maintained as an open bridge route to New England and which has proposed that an agreement be reached for joint control by the Reading, Baltimore & Ohio and Pennsylvania.

Agnew T. Dice, president of the Reading, was the first witness and he was followed by C. H. Ewing, vice-president in charge of operation, and E. D. Hilleary, vice-president in charge of freight traffic. Mr. Dice said the lease is in line with the tentative consolidation plan of the commission and that it would promote the public interest by increasing competition for New England traffic, by providing shorter and more direct routes, and by the improvement of existing routes and the opening of new routes between New England and southern and western territory via the Hagerstown and Shippensburg gateways. He said that over half of the loaded car movement of the L. & N. E. is interchanged with the Reading and Central of New Jersey and that with the opportunity to improve existing routes and open additional routes the pass-over traffic can be greatly increased. He estimated the economies that could be made as a result of the lease at about $500,000 a year and further details of this estimate were given by Mr. Ewing.

Henry Wolf Bikle, general attorney of the Pennsylvania, asked if it would not be more completely correct to say that the commission had tentatively assigned the L. & N. E. and the Reading to the Baltimore & Ohio system than to say that the L. & N. E. had been assigned to the Reading, and he reminded Mr. Dice that in the consolidation hearings the Reading had opposed assignment to the Baltimore & Ohio but had proposed a system including the Reading, Central of New Jersey, Lehigh & New England and the Lehigh & Hudson River. He also pointed out that the New York Central and the Baltimore & Ohio each have an equal interest in the Reading and asked questions to show that the proportion of the Pennsylvania anthracite directly tributary to the Reading would be increased by the lease. Mr. Dice said that the Reading handles three times as much bituminous coal as anthracite. The Western Maryland asked permission to intervene in the proceedings.

New Cinder Handling Plant on the Peoria & Pekin Union

THE Peoria & Pekin Union, which furnishes terminal facilities for a number of the roads entering Peoria, Ill., has recently completed the installation of two cinder handling plants, built for it



Cinder Car Tunnel Showing Undercut Hopper Gates

by the Roberts & Schaefer Co., Chicago, which permit the dumping of the ashpans of six locomotives at one time. The cost of the facilities is said to be about one-half that of other mechanical types of plants with the same capacity, while the dangers to workmen presented

by deep open pits of either the water or dry types are avoided.

The facilities at Peoria are placed tandem on three engine tracks and are located so as to permit two locomotives of any size to be spotted over the pits on any of the tracks without interference. The plants are of the N. & W. design, consisting of a concrete tunnel with a clear height of 8 ft. 9 in., built transversely under

Cinder Dumping Tower

the engine tracks, with openings under each track through which the cinders from the ashpans are discharged into a metal car with a capacity of 80 cu. ft., which runs on a track located on the center line of the tunnel.

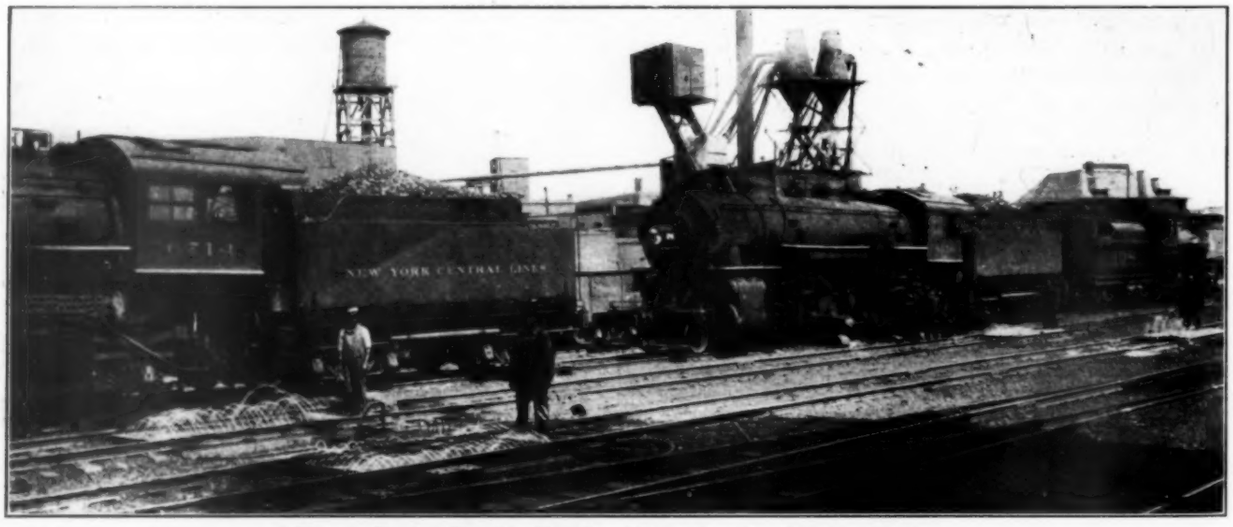
After the cinders have been dumped into the car it is hauled by a cable through the tunnel and up an inclined track supported by a structural framework from which its contents are dumped automatically into a standard gage gondola car. The cinder car and the track on which it runs are so arranged that the car remains level while ascending the incline, thus allowing it to be loaded fully without spilling any of the cinders. After being dumped the car rights itself and descends by gravity to a point under one of the pits, its stopping place being controlled by one of a set of selective push buttons.

The opening through which the cinders are discharged into the cinder car is confined to the space between the rails of the engine track, the concrete walls of the opening forming supports for the track rails over the pit. The opening is 10 ft. long and its walls enclose a cast iron hopper equipped with under-cut cast iron gates which prevent the passage of the cinders into the cinder car until they have been quenched by a spray of water from perforated pipes which surround the pit at a level under the heads of the rails. The gates are of such design that the water, passing through the cinders, is prevented from falling into the car or on the floor of the tunnel but is carried to the sides of the tunnel instead, where it drops into open drains which lead it to the underground drainage connections.

The hopper has a capacity of 80 cu. ft., the same as the cinder car, and the gates are so arranged that they cannot be opened until the car is in the proper position under the hopper to receive the cinders. The opening and closing of the gates is done by means of a lever similar to that of a parallel ground throw switch stand, the lever lying close to the ground where it is out of the way when not in use. The hoppers and gates, besides retaining the cinders until they are ready to be discharged into the cinder car, also serve as safety guards to prevent the cinder pit men from falling through the openings. The only other opening at the track level is where the cinder car emerges from the tunnel on the inclined track and this opening is guarded by pipe railings.

The hoist is operated by a General Electric squirrel cage motor of 15 hp., housed at the top of the inclined track superstructure and is controlled by a Cutler-Hammer push button control which reduces the attendance required for operation to a minimum, the number of men employed depending on their ability to dump the ashpans as rapidly as necessary, rather than on the operation of the plant itself.

The plants were built under the general supervision of E. I. Rodgers, chief engineer of the Peoria & Pekin Union.



Pits on Engine Tracks, Showing Water Jets for Cooling Cinders

General News Department

The Western Railway Club will meet at the Hotel Sherman, Chicago, on September 20, on which occasion it will be addressed by Col. W. G. Edens, vice-president of the Central Trust Company, Chicago.

The Cincinnati Railway Club will meet on September 14 at the Hotel Gibson, Cincinnati, O. Hudson Biery, director of public relations of the Cincinnati Street Railway, will read a paper on "Mutual Transportation Problems." There will be a musical program and a dinner party at the hotel.

The Car Foremen's Association of Chicago will meet at the Great Northern Hotel, Chicago, on September 13. E. L. Goodwin, assistant to the mechanical superintendent of the Pullman Company, will present a paper on "Air Pressure and Water Raising Systems in Pullman and Passenger Cars."

The accounting department of the Long Island Railroad, at New York City, is to be abolished on November 1, and the work is to be done by the Pennsylvania accounting department at Philadelphia. About 200 men and women are employed in New York, many of whom are expected to move to Philadelphia.

The Canadian Railway Club will meet at the Windsor Hotel, Montreal, on September 14 at which time a paper will be presented by R. M. Mochrie, draughtsman for the Canadian Pacific, on Box Car Side Frame Design. This is the competition paper for junior members which won the club's prize for the season 1925-26.

Postmaster General New has announced the promotion of Aleyne A. Fisher, of Vermont, superintendent of the railway mail service, third division, with headquarters at Washington, D. C., to the position of general superintendent of railway mail service, effective September 1. Mr. Fisher will succeed Walter H. Riddell, of Illinois, re-assigned for service reasons to the position being vacated by Mr. Fisher.

The United States Board of Mediation has been advised that the eastern railroads have selected as their representatives on the board of arbitration that is to arbitrate the wage demands of the conductors and trainmen W. A. Baldwin, vice-president of the Erie, and R. V. Massey, general manager, eastern region, of the Pennsylvania. The two brotherhoods have selected as their representatives Daniel L. Cease, editor of the official publication of the Brotherhood of Railroad Trainmen, and E. P. Curtis, general secretary and treasurer of the Order of Railway Conductors. These four will meet shortly to select two additional members of the board.

Pensions on the S. P. & S.

A pension system has been organized for old employees of the Spokane, Portland & Seattle and its subsidiaries which provides that employees 70 years of age who have been in the service of the company continuously for 20 years will be retired on pension. The amounts will be based on the average salaries for the 10 years immediately preceding retirement with length of service as a factor.

B. & O. Shopmen's Wages Advanced

The Baltimore & Ohio has advanced the pay of shopmen from one to two cents an hour; and work on Sundays and holidays, performed by men not regularly on duty on such days is to be paid for at the rate of time and one-half. The increases go into effect as of September 1, and include machinists, boilermakers, blacksmiths, sheet metal workers, electrical workers, car men, car cleaners and preparers, and apprentices in all classes.

New York Railroad Club

F. H. Hardin, assistant to the president of the New York Central Lines, will address the meeting of the New York Railroad Club on Friday evening, September 17, on "Railway Equipment Problems." The meeting will take place in the large auditorium of the Engineering Societies Building, 29 West 39th street, New York, at 8:00 p. m. The address and discussion will be followed by a musical program presented by the Glee Club and Orchestra of the Capitol chapter of the New York Central Veterans' Association of Albany, New York.

M-K-T Advertises Train Personnel

The Missouri-Kansas-Texas in advertising the "Sooner" operating between Kansas City, Mo., and Oklahoma City, Okla., includes the names of the men in the train crews. With the inauguration of the "Sooner" the company started a campaign of large display advertising in Kansas City newspapers, supplemented with outdoor and direct mail advertising. The public is made acquainted with the personnel of the train by displaying pictures of veterans in the service. Along with these pictures are short "human interest" stories of one paragraph, giving names, hobbies, length of service, and other interesting data regarding these men.

Twenty-Five Passengers Killed at Waco, Colorado

In the derailment of an eastbound passenger train on the Denver & Rio Grande Western near Waco, Colo., on Sunday morning, September 5, the locomotive and six cars fell down a bank and lodged in the water of the Arkansas river; and about 75 persons were killed or injured. Among the killed were the engineman, Harold Herpending, and G. M. Lillis, road foreman of engines. All of the other 25 killed appear to have been passengers.

Reports indicate that the road foreman was temporarily at the throttle. The derailment occurred on a curve of 11 degrees, at a speed estimated to have been about 40 to 45 miles an hour. Lillis had been in the service 25 years with a good record.

Car Inspector Submits Winning Safety Slogan

In a safety slogan contest conducted by the Pennsylvania at its east car shops at Ft. Wayne, Ind., more than 500 slogans were submitted by the employees. The winning slogan was one submitted by a car inspector—

> THE WORK IS DANGEROUS, THE HOSPITAL IS WORSE;
> LET'S GET TOGETHER AND BOOST SAFETY FIRST.

Other slogans winning places in the contest were, "One way, the right way, the safety way," submitted by a machine operator; "A safe day's work means a full day's pay, and a chance to prepare for a rainy day," by a car repair helper; and "Safety today for service tomorrow," by a car repair helper.

The winning slogans will be painted within large keystones on the walls of the shop buildings as constant reminders to the employees to eliminate accidents. A committee of 12 shopmen acted as judges.

Subduing Noises in a Dispatcher's Office

Felt, one-half inch thick, covered with canvas, has been placed on the walls of the train dispatcher's office of the Middle Division of the Pennsylvania, at Altoona, for the double purpose of excluding outside noises and diminishing the echo of noises within, several loud speakers being used on the telephone dispatching lines. The silencer on the ceiling includes asbestos; one thickness of asbestos then a layer of felt and another layer of asbestos,

(*Continued on page* 478)

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JULY AND SEVEN MONTHS OF CALENDAR YEAR 1926

Name of road		Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net after rents.	Net after rents, 1925.
Akron, Canton & Youngstown	July	171	$260,230	$366	$271,029	$52,802	$29,496	$10,632	$77,297	$15,849	$186,076	68.7	$84,953	$65,769	$31,276	$74,839
	7 mos.	171	1,758,618	2,685	1,843,222	349,502	208,196	79,568	537,745	105,871	1,279,986	69.4	563,236	430,721	200,397	388,023
Ann Arbor	July	293	415,165	21,816	455,809	69,760	106,975	13,217	173,161	11,162	367,015	80.5	88,794	62,658	51,397	119,351
	7 mos.	293	3,047,865	168,502	3,320,775	333,570	713,664	83,225	1,375,148	93,162	2,591,603	78.0	729,172	572,075	471,299	590,451
Atchison, Topeka & Santa Fe	July	9,336	15,306,169	3,770,345	20,355,749	2,509,841	3,075,488	391,007	5,159,406	375,896	11,463,472	56.3	8,892,277	6,889,091	6,771,070	4,137,667
	7 mos.	9,253	78,812,061	23,375,854	110,813,451	16,945,205	21,679,568	2,535,307	34,124,554	2,612,563	77,615,505	70.0	33,197,946	23,661,033	23,637,269	17,975,126
Gulf, Colorado & Santa Fe	July	1,908	3,137,965	265,011	3,504,326	494,806	536,362	52,365	988,743	65,005	2,136,532	61.0	1,367,794	1,279,049	1,113,565	357,691
	7 mos.	1,908	13,611,437	1,661,858	16,138,517	3,392,676	3,328,696	360,024	5,477,089	448,853	12,989,708	80.5	3,148,809	2,520,062	1,637,036	1,302,453
Panhandle & Santa Fe	July	923	1,478,666	145,676	1,701,436	133,197	271,723	10,205	510,376	20,073	939,291	55.2	762,145	663,915	562,308	228,979
	7 mos.	923	6,350,966	916,562	7,700,347	747,041	1,499,886	69,148	2,207,185	138,778	4,641,709	60.3	3,058,638	2,631,474	2,180,723	831,703
Atlanta & West Point	July	93	160,541	72,357	260,795	27,670	46,982	11,147	94,386	12,008	197,482	75.7	63,313	47,111	42,077	45,324
	7 mos.	93	1,135,108	483,570	1,835,257	248,788	336,814	78,258	658,959	81,428	1,439,860	78.5	395,397	287,732	214,999	224,851
Western of Alabama	July	133	173,019	66,056	262,314	37,706	55,149	11,807	88,453	11,647	209,332	79.8	52,982	43,105	51,684	51,183
	7 mos.	133	1,373,078	452,593	1,995,155	242,225	392,288	82,929	623,341	84,011	1,457,337	73.0	537,818	424,926	400,638	390,477
Atlanta, Birmingham & Atlantic	July	639	439,837	49,738	532,734	137,241	86,440	27,811	197,846	16,763	479,364	90.0	53,370	39,429	16,476	9,239
	7 mos.	639	2,739,065	291,405	3,364,342	751,595	624,725	190,498	1,263,574	129,995	3,045,060	90.5	319,282	221,245	89,479	—15,288
Atlantic Coast Line	July	4,930	5,002,732	1,477,416	6,943,710	1,173,715	1,475,575	146,902	2,699,194	169,104	5,716,058	82.3	1,227,652	776,487	726,812	624,719
	7 mos.	4,926	41,504,490	14,326,543	60,443,169	7,198,835	10,634,666	1,074,867	20,984,642	1,197,227	41,602,305	68.8	18,840,864	14,983,491	12,693,599	12,399,248
Charleston & Western Carolina	July	342	255,811	24,457	292,127	45,540	48,338	8,024	119,892	7,498	229,292	78.5	62,835	42,835	41,367	29,501
	7 mos.	342	2,124,350	159,520	2,379,528	423,820	319,927	51,775	908,650	47,313	1,745,485	73.4	634,043	484,743	412,598	424,995
Baltimore & Ohio	July	5,294	17,763,278	2,575,283	21,754,668	2,700,692	4,229,011	422,913	6,893,437	543,241	14,980,985	68.9	6,773,683	5,809,406	5,609,773	4,197,143
	7 mos.	5,294	114,465,459	15,943,470	139,384,222	16,828,243	31,285,212	2,785,948	48,835,057	3,748,525	107,717,830	75.1	34,666,392	28,305,848	26,423,356	19,915,555
Baltimore & Ohio Chicago Term	July	80	.....	.....	338,822	38,277	39,755	1,986	158,892	13,126	259,249	76.5	79,573	24,494	119,433	104,127
	7 mos.	80	.....	.....	2,147,701	241,153	230,516	13,546	1,127,507	81,464	1,737,300	80.9	410,401	61,017	730,926	640,573
Staten Island Rapid Transit	July	23	112,174	168,099	331,557	69,300	35,605	1,882	113,428	16,137	236,352	71.3	95,205	76,282	41,416	41,385
	7 mos.	23	751,915	851,570	1,835,524	351,602	227,860	14,245	768,877	104,505	1,467,089	79.9	368,435	249,592	1,633	—64,605
Bangor & Aroostook	July	615	262,511	44,715	336,899	89,564	107,737	4,583	116,848	21,107	343,067	101.8	—6,168	—30,598	11,209	—37,118
	7 mos.	615	3,401,999	463,583	4,047,124	691,831	816,619	35,062	1,077,364	162,088	2,804,725	69.3	1,242,399	919,007	1,080,997	1,068,581
Belt Ry. Co. of Chicago	July	32	.....	.....	622,648	69,132	63,619	3,038	296,075	8,830	440,694	70.8	181,954	137,366	175,366	131,285
	7 mos.	32	.....	.....	4,221,215	407,371	434,215	22,585	2,024,456	63,902	2,952,529	69.9	1,268,686	929,483	1,174,643	895,028
Bessemer & Lake Erie	July	228	2,031,017	17,628	2,076,023	102,611	331,680	14,819	412,887	31,335	895,826	43.2	1,180,197	1,024,188	1,010,689	741,595
	7 mos.	228	8,437,007	106,321	8,709,757	662,452	2,260,863	101,646	2,252,870	240,012	5,546,702	63.7	3,163,055	2,651,536	2,872,656	2,770,793
Bingham & Garfield	July	33	44,901	7	47,655	12,444	6,775	1,507	9,733	5,276	35,865	75.3	11,790	1,242	15,944	17,361
	7 mos.	33	311,712	7	323,336	55,157	61,519	10,618	74,953	35,045	238,318	73.7	85,018	19,159	128,427	110,237
Boston & Maine	July	2,169	4,245,728	1,895,830	6,965,082	976,286	1,153,252	89,595	2,645,620	245,378	5,137,922	73.8	1,827,160	1,584,484	1,313,599	1,193,867
	7 mos.	2,245	29,410,343	11,549,298	46,547,110	5,557,315	8,614,244	499,872	18,782,552	1,692,038	35,322,368	75.9	11,224,742	9,464,060	7,529,051	5,607,563
Brooklyn Eastern District Term	July	9	119,286	.....	127,051	8,934	16,587	215	43,604	5,544	74,884	58.9	52,167	48,742	43,742	44,909
	7 mos.	9	812,832	.....	865,072	57,721	103,089	3,001	311,153	43,886	518,850	60.0	346,222	293,891	302,491	292,676
Buffalo & Susquehanna R. R. Corp.	July	253	99,901	2,397	107,727	26,228	37,413	2,406	35,434	6,956	108,437	100.7	—710	—2,910	5,691	—10,314
	7 mos.	253	649,550	19,398	697,940	189,182	270,247	13,178	239,800	55,723	768,130	110.1	—70,190	—91,290	—13,974	112,772
Buffalo, Rochester & Pittsburgh	July	601	1,432,929	115,766	1,606,163	238,595	418,974	29,963	527,728	43,781	1,261,051	78.5	345,112	295,073	287,328	244,824
	7 mos.	601	9,143,117	726,888	10,240,291	1,114,371	2,920,625	202,710	3,639,458	313,575	8,206,066	80.1	2,034,225	1,684,058	1,806,783	1,073,316
Canadian Pacific Lines in Maine	July	233	95,210	29,717	138,682	54,710	28,733	5,124	68,792	3,474	160,833	116.0	—22,151	—38,051	—43,482	—60,505
	7 mos.	233	1,272,882	212,062	1,575,676	351,537	336,716	35,427	696,729	23,251	1,443,660	91.6	132,016	47,716	—52,217	—245,236
Central of Georgia	July	1,917	2,204,459	540,372	2,930,909	369,169	471,961	79,574	1,062,448	96,972	2,064,867	70.5	866,042	721,201	641,514	414,773
	7 mos.	1,917	13,157,539	3,683,884	18,432,738	2,712,300	3,196,308	532,447	6,960,305	687,954	14,081,314	76.4	4,351,424	3,525,950	3,132,878	2,464,316
Central of New Jersey	July	690	4,138,879	1,083,862	5,530,171	501,982	1,102,872	59,402	1,796,919	173,195	3,657,434	66.1	1,872,737	1,474,451	1,333,905	1,111,388
	7 mos.	690	25,914,328	5,307,362	33,419,161	3,173,652	7,222,162	301,695	12,682,538	916,373	24,443,758	73.1	8,975,403	6,199,359	5,314,957	5,107,068
Central Vermont	July	433	610,619	133,297	826,969	296,952	108,773	15,308	312,703	21,607	757,201	91.6	69,768	50,761	32,979	59,143
	7 mos.	433	3,858,310	769,266	5,146,195	1,084,110	799,796	108,852	2,265,573	159,109	4,428,486	86.1	717,709	583,894	452,411	—44,647
Chesapeake & Ohio	July	2,650	10,480,330	778,529	11,767,501	1,657,422	2,546,182	120,667	3,018,913	252,279	7,628,567	64.8	4,138,934	3,379,648	3,585,453	3,008,262
	7 mos.	2,643	65,642,401	5,197,847	74,004,180	10,612,081	18,420,457	819,239	20,385,752	1,726,949	52,193,297	70.5	21,810,883	17,695,881	19,331,156	15,954,505
Chicago & Alton	July	1,055	1,896,756	578,892	2,680,803	457,782	646,972	71,467	914,514	57,976	2,137,505	79.7	543,298	434,063	259,827	540,168
	7 mos.	1,055	12,148,821	3,734,284	17,410,291	2,327,047	4,234,140	489,742	6,419,028	461,530	13,845,003	79.5	3,565,288	2,806,576	1,620,797	2,133,639
Chicago & Eastern Illinois	July	945	1,755,708	408,054	2,333,163	288,714	545,535	81,528	809,051	68,674	1,810,657	77.6	522,506	376,656	241,680	139,205
	7 mos.	945	11,707,193	2,644,718	15,561,409	1,668,870	4,530,270	548,943	5,900,636	495,275	13,260,155	85.2	2,301,254	1,436,232	531,114	446,614
Chicago & North Western	July	8,457	9,826,956	2,523,525	13,867,739	2,258,906	2,647,195	234,782	4,846,709	344,708	10,380,464	74.8	3,489,275	2,687,378	2,448,707	2,230,895
	7 mos.	8,458	61,143,130	15,561,999	86,422,444	12,065,471	18,317,738	1,384,500	33,025,774	2,391,369	67,653,957	78.3	18,768,487	13,149,949	12,250,068	9,182,536
Chicago, Burlington & Quincy	July	9,404	9,561,282	2,562,705	13,450,753	2,142,269	2,562,479	319,542	4,388,273	368,453	9,887,789	73.5	3,562,964	2,614,068	2,305,338	2,626,948
	7 mos.	9,404	65,196,764	13,812,304	88,049,414	12,189,485	18,224,769	1,821,279	30,543,004	2,495,460	65,698,155	74.6	22,351,259	15,932,993	14,285,244	12,146,241

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JULY AND SEVEN MONTHS OF CALENDAR YEAR 1926—CONTINUED

Name of road		Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net after rents.	Net after rents, 1925.
Chicago Great Western	July	1,496	$1,843,282	$312,718	$2,319,166	$365,785	$436,597	$77,742	$814,854	$57,088	$1,763,523	76.0	$555,643	$455,388	$301,880	$176,487
	7 mos.	1,496	11,015,868	1,915,281	13,996,037	2,000,233	2,867,232	526,450	5,541,207	402,755	11,358,755	81.2	2,637,282	2,039,491	1,116,457	406,417
Chicago, Indianapolis & Louisville	July	647	1,114,595	223,258	1,480,671	153,370	287,558	37,419	521,372	33,616	1,048,003	70.8	432,667	342,622	251,788	183,126
	7 mos.	647	7,836,985	1,566,021	10,422,221	985,970	2,314,423	253,475	3,748,120	242,874	7,650,160	73.4	2,772,061	2,202,530	1,502,803	1,302,051
Chicago, Milwaukee & St. Paul	July	11,192	10,279,935	1,874,150	13,602,534	2,619,765	2,727,026	307,863	5,011,323	367,786	11,094,904	81.6	2,507,630	1,755,115	1,408,800	427,055
	7 mos.	11,198	68,341,574	11,308,215	88,862,737	13,820,798	21,466,658	1,707,829	33,931,083	2,393,984	73,709,483	82.9	15,153,254	9,885,278	7,580,267	3,569,711
Chicago River & Indiana	July	19	.....	.....	567,321	64,510	78,290	807	206,983	17,670	368,260	64.9	199,061	153,221	261,070	225,659
	7 mos.	19	.....	.....	3,896,068	395,064	542,435	5,719	1,514,779	125,682	2,583,679	66.3	1,312,389	1,014,560	1,785,181	1,606,391
Chicago, Rock Island & Pacific	July	7,563	9,552,792	1,935,316	12,488,310	1,675,664	2,387,736	225,938	4,006,382	313,600	8,634,304	69.1	3,854,006	3,258,158	2,690,629	1,413,780
	7 mos.	7,563	52,995,396	12,892,669	72,242,774	9,223,345	16,287,324	1,596,995	27,380,606	2,156,969	56,961,589	78.9	15,251,185	11,094,991	8,218,038	6,364,302
Chicago, Rock Island & Gulf	July	458	710,598	99,840	867,769	50,405	65,847	19,766	250,230	16,532	404,890	46.7	462,879	444,631	406,990	200,430
	7 mos.	458	2,958,085	561,778	3,847,628	448,805	513,110	136,983	1,483,764	114,352	2,714,212	70.5	1,133,416	1,006,564	837,616	564,693
Chic., St. Paul, Minn., & Omaha	July	1,841	1,549,899	450,422	2,198,711	465,785	410,200	34,503	889,081	74,228	1,876,482	85.3	322,229	222,229	168,096	217,868
	7 mos.	1,841	10,691,533	2,849,513	14,715,469	2,241,668	2,854,587	247,608	6,420,242	528,352	12,350,652	83.9	2,364,817	1,597,727	1,256,418	1,273,712
Cincinnati, Indianapolis & Western	July	347	353,042	30,769	414,162	116,958	76,620	15,448	148,584	15,102	373,787	90.3	40,375	21,875	—8,298	28,943
	7 mos.	347	2,375,141	180,792	2,735,872	427,302	593,326	110,572	1,095,044	133,362	2,364,166	86.4	371,706	244,761	11,695	121,800
Clinchfield Railroad	July	309	647,501	27,713	684,964	100,801	164,421	22,201	124,362	19,697	430,627	62.9	254,337	194,289	301,633	205,494
	7 mos.	309	4,397,712	183,510	4,669,709	501,583	1,259,684	158,070	927,666	139,241	2,980,721	63.8	1,688,988	1,268,838	1,936,903	1,827,084
Colorado & Southern	July	1,056	658,152	183,826	927,478	182,965	229,170	17,847	343,833	41,754	826,152	89.1	101,326	37,730	12,378	73,962
	7 mos.	1,056	5,274,186	834,529	6,732,356	944,449	1,611,504	105,238	2,520,762	299,379	5,526,043	82.1	1,206,313	759,961	650,894	495,153
Ft. Worth & Denver City	July	491	924,140	278,331	1,270,294	70,881	173,929	23,657	328,313	37,403	647,568	51.0	622,726	546,431	497,585	169,869
	7 mos.	491	5,021,590	1,357,537	6,847,514	609,231	1,215,779	126,118	2,115,144	265,830	4,391,090	64.1	2,456,424	2,022,579	1,937,350	1,436,359
Wichita Valley	July	271	101,041	19,066	127,263	15,456	7,364	39	42,244	1,732	66,378	52.2	60,885	51,351	33,333	31,100
	7 mos.	271	641,508	126,481	822,194	117,681	57,479	130	287,686	13,073	467,040	56.8	355,154	288,804	157,928	159,837
Columbus & Greenville	July	167	120,046	21,791	153,874	38,493	21,511	2,975	54,790	10,480	128,037	83.2	25,837	24,251	11,714	—2,903
	7 mos.	167	832,861	158,593	1,058,812	278,101	129,762	20,914	388,872	72,662	888,949	83.9	169,863	159,505	49,875	—61,176
Delaware & Hudson	July	881	3,648,565	411,751	4,325,909	420,701	964,571	50,769	1,286,501	143,837	2,890,664	66.8	1,435,245	1,347,245	1,391,550	977,733
	7 mos.	881	21,984,598	2,001,918	25,463,327	2,916,359	6,327,709	343,813	8,798,263	995,727	19,491,161	76.5	5,972,166	5,354,638	5,166,618	4,952,127
Delaware, Lackawanna & Western	July	999	5,712,297	1,325,327	7,892,669	915,730	1,424,560	134,021	2,609,063	178,648	5,324,038	67.5	2,568,631	1,858,133	1,907,306	1,790,606
	7 mos.	994	36,043,610	7,520,637	49,421,327	4,689,914	9,491,166	898,251	18,771,105	1,241,916	35,474,267	71.8	13,947,060	9,579,323	9,905,875	9,655,132
Denver & Rio Grande Western	July	2,574	1,989,656	604,008	2,864,471	529,589	493,688	61,098	823,662	86,629	2,057,569	71.8	806,902	616,826	719,421	707,023
	7 mos.	2,558	14,001,462	2,586,839	17,971,357	3,323,964	3,412,611	392,642	5,421,691	614,348	13,412,915	74.6	4,558,442	3,246,813	3,691,764	3,002,577
Denver & Salt Lake	July	255	268,500	32,261	327,172	164,172	98,322	2,580	71,574	7,311	342,332	104.6	—15,160	—21,168	—23,740	—17,595
	7 mos.	255	1,731,489	182,343	2,070,673	769,995	700,736	12,322	511,328	48,999	2,028,709	98.0	41,964	—51	11,854	41,068
Detroit & Mackinac	July	375	123,403	20,915	160,041	48,561	37,502	2,466	46,568	5,639	140,672	87.9	19,369	9,607	17,055	13,610
	7 mos.	375	660,494	150,777	902,138	179,632	263,734	13,816	345,119	38,096	840,271	93.1	61,867	—2,223	51,976	83,083
Detroit & Toledo Shore Line	July	50	309,222	.....	312,142	49,591	43,838	3,432	84,781	10,265	191,907	61.5	120,235	96,903	20,115	55,863
	7 mos.	50	2,698,633	.....	2,724,928	324,731	256,065	23,278	704,431	62,844	1,371,349	50.3	1,353,579	1,188,507	568,700	298,687
Detroit Terminal	July	26	.....	.....	210,233	15,607	15,772	.....	97,116	3,794	132,289	62.9	77,944	58,643	54,716	83,217
	7 mos.	26	.....	.....	1,509,934	259,121	115,316	6	771,074	25,476	1,170,993	77.6	338,941	226,333	244,801	440,226
Detroit Toledo & Ironton	July	486	1,070,841	7,051	1,094,859	208,359	225,679	10,156	307,794	34,397	786,006	71.8	308,853	255,859	140,548	121,120
	7 mos.	487	7,641,009	66,297	7,802,607	1,185,290	1,484,753	76,119	2,198,430	235,576	5,150,473	66.0	2,652,134	2,191,331	1,434,226	1,889,406
Duluth & Iron Range	July	275	1,024,237	5,835	1,168,394	131,236	107,857	2,187	214,324	21,244	477,230	40.8	691,164	614,176	616,345	498,954
	7 mos.	275	3,013,681	42,423	3,467,251	652,243	766,603	11,237	1,025,456	142,261	2,599,516	75.0	867,735	664,405	678,932	776,683
Duluth, Missabe & Northern	July	306	2,755,893	5,201	3,123,689	67,656	193,849	2,572	409,522	24,205	698,431	22.4	2,425,258	2,162,393	2,157,931	1,857,181
	7 mos.	306	7,618,864	43,674	8,677,165	1,242,214	1,387,973	20,068	1,705,766	182,509	4,541,528	52.4	4,135,637	3,039,563	2,990,390	4,317,948
Duluth, Winnipeg & Pacific	July	178	169,935	18,592	198,147	55,362	51,265	4,771	67,706	7,269	189,242	95.5	8,905	—1,013	7,593	—19,665
	7 mos.	178	1,194,825	99,006	1,343,794	245,529	354,757	29,982	468,425	64,354	1,168,899	87.0	174,894	108,269	153,946	177,976
Elgin, Joliet & Eastern	July	459	2,099,874	5	2,288,400	215,790	476,206	13,752	697,456	48,412	1,451,347	63.4	837,053	717,597	529,295	188,564
	7 mos.	459	14,194,628	101	15,518,113	1,286,996	3,283,828	96,902	5,050,268	327,316	10,044,075	64.7	5,474,038	4,776,483	3,510,124	2,493,833
Erie Railroad	July	2,053	7,355,270	1,268,646	9,379,140	1,217,371	2,583,178	148,559	3,459,548	284,690	7,735,139	82.5	1,644,001	1,257,215	1,283,164	1,690,233
	7 mos.	2,053	48,402,363	7,074,417	60,657,038	7,479,152	16,230,852	1,048,101	24,411,729	2,042,491	51,499,737	84.9	9,157,301	6,597,169	7,033,808	8,138,989
Chicago & Erie	July	269	983,536	68,157	1,147,071	156,882	120,080	23,873	364,570	40,175	704,353	61.4	442,718	378,822	107,639	55,550
	7 mos.	269	7,158,230	402,173	8,232,945	910,962	981,850	167,142	2,657,729	286,458	5,002,870	60.8	3,230,075	2,782,896	541,199	746,573
New Jersey & New York	July	45	26,626	112,434	144,761	17,202	20,245	1,492	67,270	4,364	110,570	76.4	34,191	30,541	—3,332	—3,063
	7 mos.	45	200,980	689,340	929,643	112,977	155,141	10,437	491,287	29,902	799,739	86.0	129,904	103,224	—119,766	—132,762
N. Y., Susquehanna & Western	July	135	309,389	57,928	415,831	65,803	74,591	4,090	181,070	12,081	337,624	81.2	78,207	48,799	32,767	86,800
	7 mos.	135	2,177,228	363,324	2,886,426	379,588	437,902	30,971	1,364,823	85,214	2,298,402	79.6	588,024	383,164	286,226	381,821
Evansville, Indianap. & Terre Haute	July	146	189,537	4,331	200,750	40,368	29,644	2,243	63,451	7,485	143,191	71.3	57,559	52,742	11,508	2,990
	7 mos.	146	1,351,870	38,451	1,446,218	199,831	223,434	14,268	488,759	46,516	972,174	67.2	474,044	437,217	182,588	198,149

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JULY AND SEVEN MONTHS OF CALENDAR YEAR 1926—CONTINUED

Name of road		Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio	Net from railway operation.	Operating income (or loss).	Net after rents.	Net after rents, 1925.
Florida East Coast	July	849	$1,013,006	$538,667	$1,717,798	$335,625	$264,674	23,835	$658,595	$67,998	$1,230,087	71.6	$487,711	$348,667	$246,174	$400,133
	7 mos.	849	11,004,303	6,157,431	19,300,395	2,888,062	2,739,461	222,267	7,227,655	380,048	13,102,040	67.9	6,198,355	5,258,595	3,598,270	3,408,502
Fort Smith & Western	July	249	105,339	14,254	127,411	25,696	26,736	5,328	47,831	7,531	112,947	88.7	14,464	8,963	—4,583	4,485
	7 mos.	249	767,847	95,041	917,568	184,954	192,658	38,675	328,235	52,631	795,322	86.7	122,246	83,521	—14,684	86,599
Galveston Wharf Co.	July	13	.....	.....	263,684	58,144	5,164	1,367	43,882	3,295	150,880	57.2	112,804	88,185	88,247	—19,727
	7 mos.	13	.....	.....	863,308	300,466	36,213	9,586	212,423	21,634	639,997	74.1	223,311	96,667	96,208	114,071
Georgia R. R.	July	328	398,043	87,289	513,437	71,474	85,759	21,914	210,756	22,013	412,252	80.3	101,185	88,628	90,420	128,668
	7 mos.	328	2,726,042	583,864	3,537,234	393,425	700,390	157,148	1,461,472	155,117	2,868,572	81.1	668,662	593,828	594,719	581,381
Georgia & Florida	July	406	141,163	22,536	171,397	21,622	21,725	8,502	64,895	8,222	125,194	73.0	46,203	39,203	22,520	16,748
	7 mos.	406	892,034	152,655	1,114,023	138,132	127,513	58,118	428,020	55,096	808,442	70.9	305,581	256,476	124,111	62,969
Grand Trunk Western	July	347	1,346,773	269,415	1,723,708	278,693	378,432	42,917	557,848	58,801	1,328,010	77.0	395,698	317,977	153,516	141,171
	7 mos.	347	9,866,032	1,242,089	11,705,454	1,267,119	2,619,346	263,698	3,995,234	404,829	8,616,620	73.6	3,088,834	2,572,189	1,785,836	520,079
Atlantic & St. Lawrence	July	166	190,797	40,012	252,672	56,397	39,409	6,618	94,596	8,397	206,412	81.7	46,260	32,610	—20,950	—49,280
	7 mos.	166	1,217,826	229,217	1,567,217	247,567	238,849	38,321	760,259	59,761	1,353,619	86.4	213,598	117,953	—317,843	—530,559
Chic., Det. & Canada Gr. Tr. Jct.	July	59	259,196	1,998	319,307	60,062	16,688	4,225	95,355	3,658	179,866	56.3	139,441	128,927	100,099	72,498
	7 mos.	59	1,849,048	21,619	2,206,920	263,437	128,231	28,772	701,956	27,636	1,148,595	52.0	1,058,325	985,751	755,717	630,990
Det., Grand Haven & Milwaukee	July	189	621,619	43,549	714,406	70,406	62,666	12,690	256,972	17,376	419,608	58.7	294,798	289,612	181,183	118,510
	7 mos.	189	3,716,908	243,361	4,316,311	372,535	390,521	82,216	1,757,731	109,966	2,709,573	62.8	1,606,738	1,570,698	903,524	495,788
Great Northern	July	8,164	7,901,551	1,324,063	10,327,012	1,484,626	1,457,193	239,941	2,991,051	236,498	6,479,146	62.7	3,847,866	3,010,542	3,002,761	2,595,033
	7 mos.	8,210	44,469,518	7,245,580	57,525,063	8,755,456	10,420,711	1,570,690	19,801,963	1,546,346	42,486,147	73.9	15,038,916	9,722,242	10,025,703	9,439,599
Green Bay & Western	July	234	114,663	5,190	126,751	26,491	24,610	3,818	44,184	2,543	101,640	80.1	25,111	15,111	14,200	22,456
	7 mos.	234	855,210	51,913	944,924	166,862	161,531	32,467	330,272	20,678	711,674	75.3	233,250	166,110	159,040	112,801
Gulf & Ship Island	July	307	264,963	46,976	329,558	206,629	73,277	5,282	112,265	7,238	407,540	123.7	—77,982	—103,412	—117,777	13,801
	7 mos.	307	1,805,373	325,746	2,305,581	1,213,628	469,875	35,696	913,239	47,070	2,700,923	117.1	—395,342	—577,204	—700,848	288,700
Gulf, Mobile & Northern	July	466	444,192	32,048	495,905	89,338	71,185	25,486	137,760	22,637	346,427	69.86	149,478	104,789	103,258	106,855
	7 mos.	466	3,170,284	215,584	3,535,850	583,620	554,591	174,470	993,160	161,876	2,468,667	69.82	1,067,183	763,857	744,928	693,075
Hocking Valley	July	348	1,481,719	64,689	1,751,241	210,411	419,081	14,750	484,712	40,410	1,169,307	66.8	581,934	457,893	421,387	350,803
	7 mos.	348	9,957,913	445,044	11,355,933	1,287,880	2,883,641	105,412	3,335,521	286,108	7,896,577	69.5	3,459,356	2,652,468	2,468,024	2,041,057
Illinois Central	July	4,874	10,176,636	2,026,085	13,006,907	1,974,390	3,010,572	232,139	4,403,451	326,679	10,002,332	76.9	3,004,575	2,159,131	2,151,294	1,656,883
	7 mos.	4,874	68,477,809	14,211,702	89,584,583	12,447,281	20,698,060	1,752,517	31,564,759	2,328,676	69,201,937	77.2	20,380,646	14,378,876	14,505,757	12,935,289
† Yazoo & Mississippi Valley	July	1,710	1,768,249	387,445	2,283,669	510,607	463,483	46,376	818,978	79,060	1,922,277	84.2	361,392	202,774	139,208	355,679
	7 mos.	1,473	11,127,665	2,071,677	14,036,056	2,617,194	2,684,995	265,425	5,287,232	438,803	11,270,693	80.3	2,765,363	1,762,466	1,330,777	2,332,685
* Illinois Central System	July	6,892	12,196,842	2,467,772	15,618,674	2,693,914	3,557,063	286,848	5,350,285	415,196	12,365,056	79.2	3,253,618	2,217,325	2,131,625	2,132,645
	7 mos.	6,892	83,765,991	17,135,898	109,030,124	16,847,293	24,560,543	2,172,470	38,935,156	2,983,376	85,930,550	78.8	23,099,574	15,653,108	15,157,382	16,214,830
Kansas City, Mexico & Orient	July	272	226,252	9,581	245,574	109,954	42,547	4,345	64,538	7,848	229,174	93.3	16,400	5,303	5,945	8,246
	7 mos.	272	1,018,726	50,243	1,134,239	333,411	291,272	46,132	454,010	51,078	1,174,950	103.6	—40,611	—75,426	25,442	—19,359
Kansas City, Mex. & Orient of Tex.	July	465	334,437	17,543	362,760	129,898	50,750	8,178	98,692	7,985	295,474	81.5	67,286	60,286	9,377	7,513
	7 mos.	465	1,819,281	113,966	2,013,990	508,753	394,452	54,359	635,536	51,479	1,644,218	81.6	369,772	320,349	46,157	245,391
Kansas City Southern	July	784	1,379,445	135,657	1,683,826	184,142	302,728	51,994	511,205	77,390	1,122,581	66.7	561,245	454,253	388,780	323,776
	7 mos.	784	9,091,661	857,850	11,003,384	1,203,209	1,863,025	356,879	3,478,756	545,801	7,432,579	67.5	3,570,805	2,816,121	2,470,658	1,896,005
Texarkana & Ft. Smith	July	81	228,790	12,206	256,995	25,591	23,158	5,829	71,733	11,839	140,436	54.6	116,559	99,764	63,087	45,345
	7 mos.	81	1,564,161	75,587	1,756,812	153,813	167,674	42,849	483,139	72,947	926,986	52.8	829,826	709,746	485,150	456,145
Kansas, Oklahoma & Gulf	July	314	205,740	5,273	216,870	55,510	20,470	8,891	73,742	5,555	163,804	75.5	53,066	44,927	28,788	20,726
	7 mos.	314	1,316,076	36,501	1,390,464	488,938	468,210	65,343	504,507	123,426	1,653,376	118.9	—262,912	—354,919	—463,624	—102,091
Lake Superior & Ishpeming	July	160	325,889	2,046	380,121	49,552	22,332	585	71,708	4,896	149,073	39.2	231,048	219,436	217,676	142,783
	7 mos.	160	1,033,098	27,838	1,198,345	247,061	170,007	3,601	331,621	34,000	786,259	65.6	412,086	326,344	303,415	200,730
Lake Terminal	July	13	.....	.....	122,037	22,790	16,058	.....	58,199	2,202	99,249	81.3	22,788	16,621	12,709	—901
	7 mos.	13	.....	.....	676,340	98,867	124,614	.....	379,824	12,535	615,840	91.1	60,500	17,509	19,578	6,669
Lehigh & Hudson River	July	96	263,282	2,094	275,197	28,513	40,260	1,851	91,938	16,224	178,786	65.0	96,411	81,261	61,719	56,485
	7 mos.	96	1,727,488	15,104	1,890,526	182,060	240,848	13,227	701,259	95,308	1,232,696	65.2	657,830	549,146	378,430	272,093
Lehigh & New England	July	219	345,627	1,280	455,061	57,503	104,373	5,475	146,023	16,963	326,904	58.9	228,157	195,368	195,470	168,004
	7 mos.	219	2,552,083	9,408	3,013,218	331,957	665,957	36,089	923,322	116,794	2,079,313	69.0	933,905	784,142	822,942	835,547
Lehigh Valley	July	1,363	6,060,318	792,777	7,035,439	901,638	1,455,584	134,963	2,500,584	140,056	5,168,998	70.5	2,166,441	1,732,975	1,644,203	1,531,947
	7 mos.	1,363	37,092,184	4,490,149	44,755,305	4,972,414	9,513,342	897,698	17,561,518	969,768	34,143,097	76.3	10,612,208	8,211,915	7,289,293	8,456,378
Louisiana & Arkansas	July	302	293,871	18,983	320,532	61,392	53,593	11,456	87,067	11,882	224,879	70.2	95,653	65,558	53,248	83,370
	7 mos.	302	2,197,189	131,432	2,393,252	367,105	408,442	79,951	684,448	81,139	1,618,921	67.6	774,331	536,899	430,070	425,440

* Includes operations of following companies for the month and period: Illinois Central Railroad, Gulf & Ship Island Railroad, The Yazoo & Mississippi Valley Railroad, The Alabama & Vicksburg Ry., Vicksburg, Shreveport & Pacific Ry.

† Includes Alabama & Vicksburg Ry., Vicksburg, Shreveport & Pacific Ry.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JULY AND SEVEN MONTHS OF CALENDAR YEAR 1926—CONTINUED

Name of road		Average mileage operated during period.	Operating revenues			Operating expenses						Operating ratio.	Net from railway operation.	Operating income (or loss).	Net after rents.	Net after rents, 1925.
			Freight.	Passenger.	Total (inc. misc.)	Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.					
Louisiana Ry. & Nav. Co.	July	337	$275,755	$20,626	$310,563	$59,575	$46,923	$11,175	$136,060	$10,390	$260,496	83.8	$50,067	$28,037	—$4,034	—$2,701
	7 mos.	337	1,793,841	128,837	2,037,843	407,669	335,045	79,156	916,667	71,193	1,777,627	87.2	260,216	105,327	—124,502	—25,559
Louisiana Ry. & Nav. Co. of Tex.	July	206	102,309	6,901	114,552	16,903	14,562	3,122	35,723	5,771	76,081	66.4	38,471	34,462	15,199	11,118
	7 mos.	206	662,265	41,058	741,596	128,559	116,253	22,167	346,511	41,925	653,172	88.1	88,424	60,341	—77,033	—76,171
Louisville & Nashville	July	5,038	9,846,367	1,901,235	12,353,539	1,725,965	2,637,389	229,618	4,098,991	290,501	9,021,015	73.0	3,332,524	2,628,347	2,690,705	2,275,989
	7 mos.	5,038	67,112,206	13,048,050	84,767,756	11,847,725	19,138,239	1,732,288	29,692,819	2,053,483	64,706,935	76.3	20,060,821	15,711,114	15,591,351	13,412,009
Louisville, Henderson & St. Louis	July	199	218,833	53,209	287,964	82,520	42,702	7,749	104,609	10,332	247,912	86.1	40,052	25,702	18,315	52,155
	7 mos.	199	1,674,437	368,037	2,156,096	504,120	325,868	52,759	726,134	73,565	1,682,446	78.0	473,650	350,877	300,578	437,076
Maine Central	July	1,121	1,135,529	387,490	1,694,677	309,849	306,865	16,762	666,939	50,002	1,355,987	80.0	338,690	236,531	227,704	174,978
	7 mos.	1,121	8,396,699	2,286,170	11,764,944	1,906,644	2,256,496	97,942	4,751,264	358,388	9,379,242	79.7	2,385,702	1,686,749	1,595,513	1,705,268
Midland Valley	July	364	329,724	30,945	375,091	71,444	47,405	6,637	86,912	22,334	234,285	62.5	140,806	119,996	104,757	127,956
	7 mos.	364	2,141,686	215,173	2,446,151	395,442	266,744	45,195	615,032	135,906	1,455,048	59.5	991,103	861,873	739,427	642,170
Minneapolis & St. Louis	July	1,627	1,011,511	90,778	1,168,999	193,593	264,687	36,860	576,783	43,101	1,114,682	95.4	54,317	—8,801	—50,845	—142,016
	7 mos.	1,627	6,893,906	665,709	8,012,458	1,589,901	1,912,610	255,337	3,763,461	305,787	7,823,597	97.6	188,861	—254,416	—451,684	—649,895
Minneapolis, St. Paul & S. S. Marie	July	4,400	3,157,048	664,459	4,212,190	680,228	728,429	78,544	1,463,045	109,072	3,091,552	73.4	1,120,638	866,615	749,582	780,524
	7 mos.	4,400	20,073,342	3,539,822	25,818,606	3,866,073	5,177,194	522,029	10,232,944	822,306	20,763,468	80.4	5,055,132	3,404,255	2,754,143	2,897,315
Duluth, South Shore & Atlantic	July	590	348,462	76,396	481,881	123,238	79,025	9,619	194,109	11,930	423,668	87.0	58,213	29,213	12,387	57,091
	7 mos.	590	2,288,978	521,410	3,074,933	553,016	554,959	50,408	1,321,390	80,902	2,596,019	84.4	478,914	275,914	148,736	295,698
Spokane International	July	165	92,846	12,571	113,003	21,768	9,820	3,839	32,210	6,599	75,282	66.6	37,721	32,336	22,367	23,749
	7 mos.	165	590,398	75,613	711,390	102,740	56,562	24,061	224,251	44,330	459,258	64.6	252,132	214,475	166,375	121,110
Mississippi Central	July	161	119,120	12,949	136,952	24,677	25,443	8,517	37,545	8,190	104,368	76.2	32,584	23,336	29,322	35,209
	7 mos.	161	816,446	70,966	919,325	142,704	180,584	55,284	249,554	56,011	684,122	74.4	235,203	168,724	213,490	219,881
Missouri & North Arkansas	July	364	121,948	19,508	150,674	48,190	22,658	10,353	55,398	7,669	144,268	95.7	6,406	4,006	—8,020	—5,541
	7 mos.	364	807,311	111,690	980,579	332,482	181,767	61,071	387,883	53,547	1,016,750	104.5	—36,171	—52,564	—135,420	2,042
Missouri-Kansas-Texas	July	1,799	2,726,022	397,416	3,319,786	377,680	788,730	67,074	755,373	93,272	2,074,052	62.5	1,245,734	977,534	984,210	1,048,045
	7 mos.	1,799	15,555,821	2,664,159	19,616,235	1,975,189	4,768,917	434,375	5,116,301	644,805	12,951,367	66.0	6,664,868	5,154,960	5,378,866	5,889,292
Missouri-Kansas-Texas of Tex.	July	1,389	1,567,797	347,901	2,032,572	398,905	290,928	46,803	770,886	66,085	1,558,590	76.7	473,982	420,056	261,274	—54,221
	7 mos.	1,389	8,389,641	2,349,796	11,704,410	1,959,006	1,604,336	319,581	4,765,483	457,558	9,122,712	77.9	2,581,698	2,206,038	1,053,371	729,380
Missouri Pacific	July	7,347	8,839,635	1,462,575	11,115,984	2,006,645	2,165,311	286,754	3,814,058	332,936	8,576,598	77.2	2,539,386	2,082,658	1,605,840	1,465,607
	7 mos.	7,346	59,842,767	9,218,246	74,838,180	11,594,512	15,552,613	1,912,863	26,911,890	2,311,339	58,352,635	78.0	16,485,545	13,295,340	10,331,630	8,717,295
Gulf Coast Lines	July	922	917,110	195,023	1,168,089	235,719	214,167	38,375	345,018	52,275	884,826	75.7	283,263	217,527	196,575	296,098
	7 mos.	922	7,485,652	1,277,068	9,309,391	1,554,254	1,527,739	273,679	2,668,421	372,653	6,350,169	68.2	2,959,222	2,562,815	2,000,217	2,466,751
International-Great Northern	July	1,159	1,197,659	210,458	1,526,718	316,896	241,516	37,293	549,774	58,465	1,197,640	78.45	329,078	274,584	187,528	86,428
	7 mos.	1,159	7,787,913	1,396,832	10,073,542	1,853,104	1,677,214	233,826	4,073,904	410,824	8,194,245	81.34	1,879,297	1,561,562	978,687	843,551
Texas & Pacific	July	1,953	2,069,791	536,044	2,803,917	456,809	520,774	70,042	983,454	102,517	2,143,745	76.5	660,172	497,302	432,872	339,374
	7 mos.	1,953	14,478,245	3,435,330	19,445,461	3,176,037	3,763,456	477,433	7,187,819	685,835	15,313,105	78.8	4,132,356	3,029,042	2,471,284	2,315,299
Mobile & Ohio	July	1,161	1,406,293	129,288	1,609,076	260,929	300,052	51,756	539,534	45,567	1,197,934	74.4	411,142	301,957	275,876	314,086
	7 mos.	1,161	9,923,096	806,635	11,297,793	1,626,193	2,132,423	360,582	3,868,520	320,964	8,307,867	73.5	2,989,926	2,264,046	1,950,243	1,818,076
Monongahela	July	130	486,996	19,994	512,044	62,500	65,000	1,083	135,771	9,464	272,660	53.2	239,384	213,328	147,989	150,534
	7 mos.	130	3,492,604	155,617	3,694,696	437,500	455,000	7,623	1,043,320	70,661	2,003,951	54.2	1,690,745	1,518,765	994,581	769,982
Monongahela Connecting	July	7	.....	.....	178,292	17,439	36,657	375	75,071	3,613	133,155	74.7	45,137	35,420	32,677	13,638
	7 mos.	7	.....	.....	1,303,706	128,964	245,615	2,643	585,802	22,820	985,844	75.6	317,862	270,315	254,464	149,580
Montour	July	57	121,035	273	122,344	28,588	57,219	990	19,044	7,025	112,836	92.2	9,508	3,406	37,885	12,356
	7 mos.	57	517,466	2,019	524,268	141,821	292,787	8,512	112,457	47,845	603,422	115.1	—79,154	—101,264	122,110	163,233
Nashville, Chattanooga & St. Louis	July	1,259	1,539,154	393,273	2,050,626	273,363	419,609	83,298	701,056	77,068	1,560,232	76.1	490,394	380,105	398,666	430,744
	7 mos.	1,259	10,324,397	2,688,653	17,983,090	2,201,948	2,861,058	562,286	5,033,121	536,676	11,227,978	80.3	2,755,112	2,193,748	2,114,210	1,837,213
Nevada Northern	July	165	63,148	6,871	76,668	9,613	5,874	1,003	11,794	3,467	31,921	41.6	44,747	32,525	33,292	29,584
	7 mos.	165	441,606	55,019	544,888	83,357	40,563	6,223	101,383	31,719	264,443	48.5	280,445	208,970	215,812	190,957
Newburgh & South Shore	July	7	.....	.....	165,892	21,625	35,774	.....	65,624	5,223	128,246	77.3	37,646	25,130	31,550	13,878
	7 mos.	7	.....	.....	1,165,876	139,440	282,926	.....	491,128	29,480	942,974	80.9	222,902	130,302	156,910	214,316
New Orleans Great Northern	July	274	232,746	35,801	276,619	39,332	53,767	7,591	78,790	11,261	191,009	69.1	85,610	66,939	54,775	53,778
	7 mos.	274	1,559,970	189,068	1,803,412	222,206	361,676	49,812	522,906	78,546	1,237,066	68.6	566,346	433,259	341,611	272,511
New York Central	July	6,930	20,049,775	9,773,605	34,208,492	4,893,037	6,697,233	428,122	11,084,035	1,108,028	24,686,329	72.2	9,522,163	7,152,845	6,779,663	6,394,495
	7 mos.	6,930	140,647,418	57,181,694	226,540,074	28,576,614	49,278,101	2,795,708	77,165,355	8,513,011	169,486,595	74.8	57,053,569	41,331,944	39,949,404	36,941,392
Cincinnati Northern	July	244	352,102	8,366	371,651	53,621	84,713	5,959	120,099	16,327	280,543	75.5	91,108	71,054	43,051	67,539
	7 mos.	244	2,555,751	48,020	2,659,469	307,524	487,263	41,031	879,009	85,398	1,795,750	67.5	863,719	693,558	490,210	485,295
Cleve., Cin., Chicago & St. Louis	July	2,391	5,796,389	1,464,952	7,911,445	1,109,694	1,695,933	148,181	2,691,520	277,510	5,991,210	75.7	1,920,235	1,504,074	1,434,369	1,266,512
	7 mos.	2,391	39,420,887	9,328,457	53,239,253	6,099,227	11,443,680	928,121	19,128,210	1,944,473	40,065,118	75.3	13,174,135	10,050,145	9,486,900	9,278,327
Indiana Harbor Belt	July	116	.....	.....	940,937	142,127	98,831	4,832	292,318	28,416	565,345	60.1	375,592	316,362	253,747	151,489
	7 mos.	116	.....	.....	6,382,270	731,296	828,261	33,728	2,689,953	208,096	4,487,731	70.3	1,894,539	1,564,066	1,185,609	934,422

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JULY AND SEVEN MONTHS OF CALENDAR YEAR 1926—CONTINUED

Name of road		Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of: Way and structures.	Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net after rents.	Net after rents, 1925.
Michigan Central	July	1,871	$5,193,579	$2,124,700	$8,018,858	$1,196,579	$1,564,205	$118,685	$2,414,326	$259,846	$5,648,081	70.4	$2,370,777	$1,889,792	$1,762,039	$2,096,387
	7 mos.	1,871	37,812,872	12,374,583	55,501,590	6,265,362	10,648,181	790,641	17,581,457	1,869,914	37,715,335	68.0	17,786,255	14,259,120	13,393,005	12,775,504
Pittsburgh & Lake Erie	July	231	2,565,120	267,714	2,932,000	395,730	946,093	24,449	834,247	82,649	2,284,460	77.9	647,540	439,157	761,202	662,274
	7 mos.	231	16,686,164	1,692,327	19,062,916	2,587,740	6,138,730	171,033	6,053,861	571,486	15,537,016	81.5	3,525,900	2,281,972	4,897,832	4,972,171
New York, Chicago & St. Louis	July	1,691	4,037,636	211,807	4,403,102	622,554	902,232	133,978	1,450,206	153,771	3,263,482	74.1	1,139,620	873,388	699,935	760,309
	7 mos.	1,691	29,232,534	1,099,449	31,377,289	3,990,479	6,131,908	867,195	10,827,988	1,120,027	22,905,112	73.0	8,472,177	6,692,036	5,590,583	5,729,610
N. Y., New Haven & Hartford	July	1,918	5,846,305	4,518,950	11,599,441	1,654,132	2,577,288	90,353	3,757,069	309,917	8,565,868	73.8	3,033,573	2,571,044	1,984,477	2,018,872
	7 mos.	1,918	39,392,391	28,603,737	76,727,447	10,352,590	16,160,190	543,291	26,860,273	2,110,330	57,224,850	74.6	19,502,597	16,342,207	12,743,545	12,393,189
Central New England	July	279	622,341	3,462	642,814	139,793	103,211	6,971	231,078	18,769	499,822	77.8	142,992	118,377	94,690	88,082
	7 mos.	279	4,145,637	25,414	4,300,467	741,511	701,264	47,143	1,470,683	117,720	3,078,321	71.6	1,222,146	1,037,083	766,581	884,733
New York Connecting	July	20	216,390	.....	242,139	88,731	14,784	.....	53,564	1,880	158,959	65.6	83,180	44,380	44,600	92,320
	7 mos.	20	1,388,747	.....	1,597,246	225,182	92,374	.....	362,773	10,869	691,198	43.3	906,048	637,648	623,117	684,417
New York, Ontario & Western	July	569	810,000	678,976	1,725,535	219,864	252,468	18,317	544,639	32,445	1,071,574	62.1	653,961	603,850	544,181	563,748
	7 mos.	569	4,983,222	1,415,581	7,652,827	944,989	1,534,140	113,932	3,188,998	240,613	6,035,695	78.9	1,617,132	1,266,831	905,695	860,761
Norfolk & Western	July	2,241	9,838,334	754,437	10,930,854	1,456,867	1,773,758	99,944	2,493,995	178,968	5,967,654	54.6	4,963,200	3,961,491	4,260,062	2,622,105
	7 mos.	2,241	58,823,818	4,391,267	65,495,417	8,950,122	12,179,428	744,866	16,900,748	1,310,958	40,015,193	61.1	25,480,224	19,896,699	21,899,060	14,970,531
Norfolk Southern	July	931	710,266	97,842	849,626	113,645	144,677	24,668	315,465	28,591	617,237	72.6	232,389	174,399	134,917	110,764
	7 mos.	931	5,003,486	504,937	5,805,709	741,999	887,988	165,066	2,148,438	196,892	4,065,243	70.0	1,740,466	1,383,962	1,081,066	719,942
Northern Pacific	July	6,682	6,078,680	1,401,064	8,246,303	1,154,152	1,556,952	206,186	2,591,975	234,884	5,849,586	70.6	2,396,717	1,642,325	1,895,542	1,750,817
	7 mos.	6,682	40,253,736	7,370,414	52,304,723	8,235,097	10,324,938	1,542,949	18,315,311	1,690,991	40,606,549	77.6	11,698,174	6,838,438	9,421,093	7,092,975
Northwestern Pacific	July	477	528,829	254,855	850,073	90,996	76,791	5,995	243,837	17,447	434,871	51.2	415,202	374,488	355,777	236,612
	7 mos.	486	2,383,362	1,208,436	3,952,827	668,692	568,319	45,451	1,512,783	126,309	2,920,498	73.9	1,032,329	744,763	667,834	434,567
Pennsylvania	July	10,518	41,090,308	12,827,126	59,231,293	7,587,538	13,063,712	710,570	20,784,540	1,544,017	44,415,469	75.0	14,815,824	11,205,757	9,859,836	10,362,472
	7 mos.	10,518	277,044,064	83,473,506	396,046,792	52,229,517	93,932,841	4,944,343	146,572,873	10,892,803	313,724,357	79.2	82,322,435	63,480,777	54,427,542	48,385,450
Baltimore, Chesapeake & Atlantic	July	130	105,391	57,260	171,621	21,724	20,419	3,672	94,565	3,214	143,594	83.7	28,027	15,228	15,727	40,018
	7 mos.	130	516,102	206,301	768,264	92,703	262,136	14,002	538,232	23,732	930,805	121.2	—162,541	—187,532	—191,280	—147,543
Long Island	July	397	927,958	2,907,288	4,052,137	418,326	504,454	36,433	1,303,435	73,441	2,341,802	57.8	1,710,335	1,308,403	934,716	1,240,830
	7 mos.	397	6,432,456	14,306,102	22,256,278	3,092,033	3,675,297	205,213	9,280,414	539,967	16,852,540	75.7	5,403,738	4,205,801	2,756,704	3,542,709
West Jersey & Seashore	July	378	447,700	991,614	1,498,837	195,940	164,297	18,938	586,094	27,824	994,067	66.3	504,770	225,542	196,731	388,328
	7 mos.	378	2,886,577	4,019,079	7,219,015	1,408,475	1,076,672	115,679	3,241,412	183,826	6,031,336	83.5	1,187,679	643,110	470,500	890,611
Peoria & Pekin Union	July	19	24,388	1,619	136,956	15,063	13,818	680	58,202	7,758	95,521	69.7	41,435	20,435	55,346	33,717
	7 mos.	19	153,210	16,892	1,012,007	114,401	98,275	6,196	428,838	57,308	705,018	69.7	306,989	181,989	369,471	291,265
Pere Marquette	July	2,243	3,169,609	457,785	3,888,316	556,541	723,154	53,989	1,225,257	116,620	2,675,800	68.8	1,212,516	1,007,248	837,835	606,893
	7 mos.	2,249	21,376,010	2,296,405	25,312,654	2,756,188	5,285,071	382,514	8,756,698	826,383	18,047,001	71.3	7,265,653	5,857,427	4,975,148	3,779,110
Pittsburgh & Shawmut	July	102	135,433	1,968	140,698	20,939	39,385	1,304	36,450	7,302	105,380	74.9	35,318	34,976	48,695	15,131
	7 mos.	102	912,248	27,581	955,469	128,781	296,616	9,822	260,405	49,346	744,970	78.0	210,499	209,123	291,561	117,330
Pittsburgh & West Virginia	July	92	406,465	5,064	444,392	46,997	82,333	8,792	80,193	21,827	252,103	56.7	192,289	127,986	234,304	177,446
	7 mos.	92	2,588,817	41,331	2,873,528	277,702	620,965	56,915	548,220	136,033	1,727,956	60.1	1,145,572	772,777	1,353,501	1,101,025
Pittsburgh, Shawmut & Northern	July	210	171,016	2,432	176,220	40,782	30,960	1,444	60,784	5,268	139,238	79.0	36,982	33,988	23,150	10,638
	7 mos.	210	1,053,245	20,779	1,099,105	205,229	237,728	11,879	406,788	39,454	901,078	82.0	198,027	176,857	109,053	116,951
Quincy, Omaha & Kansas City	July	249	52,852	12,202	72,562	52,510	9,413	908	29,240	2,327	94,325	130.0	—21,763	—23,346	—27,019	—14,740
	7 mos.	250	350,703	108,932	513,733	228,544	101,930	5,974	238,869	18,328	592,659	115.4	—78,926	—112,472	—132,404	—152,540
Reading Company	July	1,138	6,748,503	816,593	7,935,750	1,258,483	1,754,089	81,060	2,687,551	182,133	5,960,218	75.1	1,975,532	1,542,260	1,688,562	1,807,991
	7 mos.	1,137	47,197,252	5,511,102	55,295,237	8,040,349	12,447,574	541,915	19,873,322	1,278,958	42,170,069	76.3	13,125,168	10,017,999	11,069,431	11,330,248
Atlantic City	July	161	142,017	532,339	701,026	60,548	41,576	13,348	250,404	3,248	369,528	52.7	331,498	295,967	251,968	316,416
	7 mos.	161	932,128	1,550,666	2,621,688	601,617	233,866	47,222	1,384,114	44,564	2,312,802	88.2	308,886	92,532	—124,662	7,852
Tuckahoe	July	41	123,543	6,998	133,894	13,843	6,277	106	44,669	1,074	66,029	49.3	67,865	61,208	55,944	37,403
	7 mos.	41	748,649	35,634	807,882	76,247	44,404	755	324,050	7,505	453,305	56.1	354,577	303,947	267,166	238,800
Port Reading	July	19	128,398	.....	167,866	27,911	47,507	229	64,854	1,743	142,244	84.7	25,622	8,462	—45,875	70,130
	7 mos.	19	1,118,290	.....	1,452,032	174,183	98,186	1,603	530,979	18,846	823,795	56.7	628,237	514,283	64,123	107,318
Richmond, Fred'ksburg & Potomac	July	117	566,521	299,423	1,032,962	128,888	191,893	8,035	368,563	43,439	767,967	74.4	264,995	200,885	149,112	230,497
	7 mos.	117	3,711,146	2,820,931	7,917,656	717,252	1,263,310	60,473	2,593,461	269,135	5,155,256	65.1	2,762,400	2,217,715	1,830,169	1,872,045
Rutland	July	413	327,282	108,529	585,876	130,415	102,869	10,128	206,047	12,300	463,691	79.1	122,185	88,043	96,683	111,484
	7 mos.	413	2,266,292	713,035	3,846,303	733,364	776,809	71,846	1,526,561	93,955	3,214,562	83.6	631,741	433,840	500,257	381,339
St. Louis-San Francisco	July	4,986	5,981,312	1,394,747	7,871,515	1,072,387	1,487,959	122,041	2,399,695	252,867	5,274,158	67.0	2,597,357	2,141,023	2,131,511	1,845,700
	7 mos.	4,986	38,031,255	8,984,976	50,657,482	6,358,690	10,015,017	780,798	16,990,250	1,717,960	35,577,722	70.2	15,079,760	12,362,599	12,386,196	11,714,432
Ft. Worth & Rio Grande	July	233	75,077	16,813	101,009	42,526	21,905	3,469	51,123	5,120	123,934	122.7	—22,925	—27,084	—36,351	—24,637
	7 mos.	233	540,981	107,764	716,815	185,174	143,895	23,827	368,312	37,644	757,972	105.7	—41,157	—70,386	—128,249	—91,642
St. Louis, San Francisco & Tex	July	137	169,690	12,163	188,296	27,516	32,189	5,315	64,483	7,236	136,607	72.5	51,689	49,319	23,213	15,886
	7 mos.	137	961,574	84,323	1,087,803	171,569	180,935	35,642	397,168	51,399	836,402	76.9	251,401	232,596	63,787	104,113
St. Louis Southwestern	July	940	1,217,193	122,295	1,410,307	216,743	286,951	58,435	358,374	57,948	994,296	70.5	416,011	357,035	279,168	283,247
	7 mos.	940	8,783,297	797,633	10,111,788	1,528,312	1,876,921	402,338	2,610,254	413,415	6,936,000	68.6	3,175,788	2,728,729	2,145,994	2,113,526
St. Louis Southwestern of Texas	July	807	527,103	64,007	638,599	197,382	142,962	24,935	255,008	32,241	650,341	101.8	—11,742	—45,319	5,513	—38,929
	7 mos.	807	3,310,434	405,895	4,052,017	1,241,118	917,217	173,519	1,719,342	229,687	4,283,680	105.7	—231,663	—438,313	—48,143	—60,161

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JULY AND SEVEN MONTHS OF CALENDAR YEAR 1926—CONTINUED

Name of road		Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net after rents.	Net after rents, 1925.
San Antonio, Uvalde & Gulf	July	318	$118,175	$22,067	$151,632	$27,316	$14,603	$3,887	$59,937	$5,242	$110,949	73.2	$40,683	$36,836	$18,480	$13,421
	7 mos.	318	887,890	147,766	1,115,225	200,213	137,005	25,004	374,776	41,676	778,638	69.8	336,587	311,235	189,873	108,607
Seaboard Air Line	July	3,928	3,704,276	821,784	4,895,348	599,769	791,855	180,362	1,809,058	190,807	3,624,770	74.0	1,270,578	979,969	871,082	800,965
	7 mos.	3,928	28,578,535	7,910,510	39,990,862	5,175,270	6,180,189	1,398,631	14,900,003	1,325,156	29,633,925	74.1	10,356,937	8,321,266	6,432,569	5,678,992
Southern Ry.	July	6,797	9,322,230	2,669,331	12,941,987	1,894,501	2,206,797	253,845	4,158,975	333,181	8,915,170	68.9	4,026,817	3,201,702	3,147,810	2,738,926
	7 mos.	6,793	64,397,067	17,750,387	89,180,474	12,652,155	15,694,852	1,756,375	30,286,291	2,311,455	63,302,430	71.0	25,878,044	20,128,316	18,857,504	17,331,390
Alabama Great Southern	July	318	606,147	189,893	850,105	131,224	168,145	21,186	256,769	23,618	607,953	71.5	242,152	177,982	224,930	179,476
	7 mos.	318	4,584,345	1,126,784	6,092,003	889,520	1,221,588	147,586	1,858,606	167,235	4,332,586	71.1	1,759,417	1,342,692	1,452,720	1,423,435
Ch., New Orleans & Tex. Pacific	July	338	1,550,048	354,761	2,013,992	315,456	374,350	40,725	538,244	54,039	1,338,720	66.5	675,272	552,037	549,229	636,840
	7 mos.	338	10,122,205	2,554,161	13,491,002	1,908,320	2,530,219	302,924	3,821,562	375,862	9,082,565	67.3	4,408,437	3,559,285	3,548,048	3,836,975
Georgia Southern & Florida	July	401	374,014	138,388	540,762	97,849	108,593	14,920	212,028	12,275	449,769	83.2	90,993	59,252	30,866	152,436
	7 mos.	401	2,843,734	1,143,105	4,277,354	612,646	653,473	124,104	1,631,319	86,787	3,139,750	73.4	1,137,604	908,915	585,170	747,803
New Orleans & Northeastern	July	207	366,228	88,907	490,755	64,958	77,942	12,679	151,268	14,483	326,105	66.4	164,650	94,838	74,105	93,102
	7 mos.	207	2,795,613	560,499	3,602,475	463,932	545,922	87,792	1,072,107	102,491	2,301,264	63.9	1,301,211	888,524	662,717	729,729
Northern Alabama	July	110	101,685	9,300	113,553	23,711	5,037	2,023	36,424	2,845	69,979	61.6	43,574	37,566	12,636	17,668
	7 mos.	110	767,704	59,683	846,567	169,472	36,507	15,085	273,558	20,031	514,393	60.8	332,174	288,258	112,686	146,291
Southern Pacific	July	8,746	13,744,271	3,887,507	19,370,188	2,707,973	2,917,812	389,104	6,041,025	561,815	12,827,578	66.2	6,542,610	5,007,208	4,541,774	3,237,989
	7 mos.	8,754	84,243,861	24,316,868	119,222,633	18,118,308	20,410,712	2,460,794	39,314,211	4,245,504	85,876,159	72.0	33,346,474	23,590,942	21,865,408	16,372,744
Atlantic Steamship Lines	July	...	822,332	63,302	1,045,126	15,981	186,387	15,902	616,947	34,080	869,297	83.2	175,829	166,629	167,703	—99,885
	7 mos.	...	5,789,862	313,521	7,192,187	117,191	1,281,703	112,802	4,463,420	236,840	6,211,956	86.4	980,231	911,867	916,467	—379,939
Galveston, Harrisb'g & S. Antonio	July	2,104	1,748,213	465,965	2,380,053	426,214	497,502	61,248	882,805	112,814	2,004,580	84.2	375,373	275,880	199,183	212,733
	7 mos.	2,104	11,877,276	3,120,054	16,172,109	3,134,425	3,489,773	395,574	6,011,697	766,060	13,961,588	86.3	2,210,521	1,536,270	921,346	1,162,879
Houston & Texas Central	July	900	860,978	253,124	1,179,111	180,145	252,797	29,429	385,519	49,519	899,603	76.3	279,508	221,841	187,891	81,938
	7 mos.	897	5,442,564	1,581,274	7,595,045	1,462,978	1,698,993	201,420	2,613,476	344,832	6,331,274	83.4	1,263,771	844,707	704,876	832,686
Houston, East & West Texas	July	191	202,124	39,831	252,549	45,673	41,328	4,198	71,571	9,706	172,313	68.2	80,236	62,127	52,571	53,394
	7 mos.	191	1,429,947	252,757	1,771,108	321,293	356,097	28,454	508,948	69,766	1,280,491	72.3	490,617	379,865	290,915	166,305
Louisiana Western	July	207	210,157	81,966	312,533	36,167	71,268	16,439	96,061	20,561	244,001	78.1	68,532	44,212	41,200	49,006
	7 mos.	207	1,493,291	545,028	2,191,990	322,450	459,953	109,743	689,087	140,853	1,751,079	79.9	440,911	275,348	233,148	262,148
Morgan's L. & T. R. R. & S. S. Co.	July	400	452,971	129,412	624,966	148,767	156,474	25,573	268,609	36,935	640,450	102.5	—15,484	—66,678	—83,400	—7,217
	7 mos.	400	3,211,014	898,213	4,506,222	1,167,837	1,133,562	166,009	1,988,495	255,407	4,742,452	105.2	—236,230	—593,962	—727,469	—382,622
Texas & New Orleans	July	569	656,335	145,200	852,177	145,547	196,467	17,143	291,387	35,982	686,705	80.6	165,472	129,681	102,047	131,948
	7 mos.	555	4,414,096	1,016,879	5,809,570	1,129,931	1,270,780	114,850	2,166,431	252,931	4,954,109	85.3	855,461	606,697	340,239	797,504
Spokane, Portland & Seattle	July	554	564,049	153,604	777,223	122,332	95,012	14,877	210,376	22,806	471,474	60.7	305,749	228,513	259,965	117,036
	7 mos.	554	3,348,541	776,078	4,538,270	737,646	652,108	77,793	1,346,941	151,323	3,009,162	66.3	1,529,108	988,653	938,572	644,329
Tennessee Central	July	296	219,998	32,393	265,538	46,343	41,704	7,738	95,262	11,879	202,555	76.3	62,983	57,141	34,655	49,423
	7 mos.	296	1,567,783	216,605	1,884,959	400,063	312,050	54,352	681,219	84,686	1,530,365	81.2	354,954	310,579	145,303	218,031
Terminal Railroad Assn. of St. L.	July	55	.....	.....	1,117,705	163,521	80,359	2,370	402,331	20,535	672,843	60.2	444,862	333,091	434,917	360,116
	7 mos.	55	.....	.....	7,682,645	1,098,628	656,292	16,734	2,947,559	157,509	4,901,289	63.8	2,781,356	2,006,822	2,609,863	2,202,344
Toledo, Peoria & Western	July	248	93,474	14,878	117,861	30,293	26,417	3,082	59,228	6,975	125,990	106.9	—8,129	—15,847	—22,738	—30,480
	7 mos.	248	599,713	135,116	799,545	161,341	200,824	14,184	435,577	46,978	858,756	107.4	—59,211	—111,117	—136,166	—178,885
Trinity & Brazos Valley	July	367	437,727	14,142	457,043	64,668	46,390	4,561	148,672	12,480	276,724	60.5	180,319	172,615	128,400	—141,747
	7 mos.	367	1,202,849	68,357	1,315,115	365,006	255,097	31,939	612,341	90,936	1,353,724	102.9	—38,609	—92,764	—258,284	—317,609
Ulster & Delaware	July	128	55,004	80,404	177,014	21,654	16,620	2,687	73,453	5,546	119,960	67.8	57,054	51,304	42,476	47,626
	7 mos.	128	310,660	146,687	701,721	121,163	121,384	12,077	348,851	40,124	643,599	91.7	58,122	17,871	—6,689	14,418
Union R. R. of Penna.	July	45	.....	.....	1,174,441	103,618	284,545	184	421,044	8,224	817,615	69.6	356,826	295,826	389,845	312,498
	7 mos.	45	.....	.....	6,980,927	708,068	1,572,936	1,251	3,045,289	75,792	5,403,336	77.4	1,577,591	1,312,184	1,743,395	1,439,063
Union Pacific	July	3,691	7,129,581	1,560,704	9,592,374	1,534,835	1,984,332	197,902	2,527,744	293,455	6,776,276	70.6	2,816,098	2,137,570	1,761,370	1,558,224
	7 mos.	3,690	43,445,069	9,267,585	58,216,758	7,823,734	13,142,947	1,296,039	16,237,793	2,071,636	41,816,034	71.8	16,400,724	11,534,964	10,561,809	11,018,695
Oregon Short Line	July	2,537	2,070,168	475,308	2,810,646	601,660	490,676	56,768	857,974	112,540	2,191,838	78.0	618,808	367,635	269,281	138,474
	7 mos.	2,517	15,377,304	2,552,234	19,444,039	3,626,783	3,628,043	377,029	5,875,675	803,809	14,717,199	75.7	4,726,840	2,928,621	2,481,494	1,673,526
Oregon, Wash. R. R. & Nav. Co.	July	2,237	1,910,844	408,361	2,531,719	474,264	361,739	84,802	868,791	116,349	1,931,813	76.3	599,906	410,121	269,966	5,575
	7 mos.	2,237	12,488,417	2,287,575	16,216,259	3,122,850	2,615,831	529,948	5,783,651	813,161	13,043,381	80.4	3,172,878	1,955,198	1,260,047	206,489
Los Angeles & Salt Lake	July	1,208	1,246,576	522,192	2,009,112	350,239	379,022	75,916	596,246	71,265	1,578,245	78.6	430,867	299,220	187,790	108,004
	7 mos.	1,207	9,855,981	2,867,182	14,040,478	2,743,582	2,819,301	507,300	4,358,896	536,288	11,529,566	82.1	2,510,912	1,579,910	939,675	1,075,459
St. Joseph & Grand Island	July	258	216,912	14,985	254,554	100,281	49,892	3,009	93,627	15,352	263,847	103.7	—9,293	—23,426	—41,050	—12,533
	7 mos.	258	1,762,740	114,858	2,000,849	398,113	319,319	21,334	680,657	103,532	1,524,641	76.2	476,208	337,837	235,308	140,609
Utah	July	111	131,812	120	132,471	31,605	33,427	685	27,493	5,788	98,998	74.7	33,473	23,961	24,527	19,813
	7 mos.	111	918,397	1,002	923,154	128,894	272,115	2,959	200,269	43,206	647,374	70.1	275,780	209,196	188,447	169,742
Virginian	July	545	1,840,103	58,051	2,127,890	251,036	343,746	12,996	414,645	32,390	1,049,004	49.3	1,078,886	950,773	1,028,339	416,278
	7 mos.	545	11,032,348	402,660	12,343,199	1,517,736	2,476,352	90,745	2,654,262	218,412	6,936,656	56.2	5,406,543	4,480,088	5,041,113	3,050,207
Wabash	July	2,524	4,730,598	869,669	6,023,006	1,101,890	1,081,727	175,987	2,073,361	176,267	4,614,782	76.6	1,408,224	1,144,774	905,701	999,797
	7 mos.	2,524	31,924,800	5,271,391	40,030,055	5,732,211	7,226,247	1,081,246	15,186,323	1,213,116	30,536,995	76.3	9,493,060	7,569,348	5,591,288	5,357,535
Western Maryland	July	804	1,877,200	59,487	2,005,117	226,015	551,999	39,911	527,761	43,779	1,400,032	69.8	605,085	520,085	480,142	438,869
	7 mos.	804	12,028,007	332,646	12,774,905	1,672,938	2,925,585	256,251	3,718,884	311,119	8,943,005	70.0	3,831,900	3,271,900	3,025,787	2,514,558
Western Pacific	July	1,042	1,220,272	247,938	1,617,288	232,128	213,493	39,918	463,188	39,121	1,070,447	66.2	546,841	432,790	485,727	312,191
	7 mos.	1,042	6,695,281	1,097,845	8,346,357	1,313,258	1,478,988	269,763	2,779,838	254,588	6,290,229	75.4	2,056,128	1,343,735	1,949,514	1,580,872
Wheeling & Lake Erie	July	511	1,689,123	43,390	1,865,049	302,129	386,886	34,711	505,050	42,183	1,272,174	68.2	592,875	435,865	438,963	418,235
	7 mos.	511	10,834,872	266,792	11,778,608	1,585,493	2,791,366	226,176	3,444,756	325,083	8,383,781	71.2	3,394,827	2,416,461	2,419,669	2,239,534

General News Department

(*Continued from page* 471)

perforated. The dispatchers working at the loud speakers find conditions much pleasanter than formerly. The sounds which formerly echoed throughout the room seem now to die away after traveling a very short distance, and the loud speaker on one desk does not interfere at all with the dispatcher at the adjacent desk.

Fuel Statistics

Class 1 railroads consumed 49,935,063 net tons of coal and 990,537,707 gallons of oil as fuel for road locomotives in the first six months of 1926, according to the Interstate Commerce Commission's monthly compilation of railroad fuel statistics. This compares with 47,404,406 tons of coal and 982,053,985 gallons of oil in the corresponding period of last year. The figures apply only to fuel charged to operating expenses and do not include switching service.

Although more fuel was consumed than in the first six months of last year the total cost was less; $160,076,809 as compared with $162,962,196. The average cost of coal per ton decreased from $2.78 to $2.63 while the average cost of oil decreased from 3.17 cents per gallon to 2.91 cents. The cost of the coal used was $131,291,648 and the cost of the oil was $28,785,161.

For the month of June the average cost of coal was $2.61 as compared with $2.70 last June and the average cost of oil was 2.92 cents as compared with 3.30 cents last June. For the month of June alone the total cost of coal and oil was $24,247,192.

Tool Foremen Elect Officers

At the closing session of the American Railway Tool Foremen's Association convention, held at Chicago on September 3, new officers for 1926-27 were elected as follows: President, O. D. Kinsey, supervisor of tools, Chicago, Milwaukee & St. Paul, Milwaukee, Wis.; first vice-president, E. A. Greame, tool foreman, Delaware, Lackawanna & Western, Scranton, Pa.; second vice-president, W. R. Millican, tool foreman, Missouri-Kansas-Texas, Parsons, Kan.; and third vice-president, H. P. Jones, tool foreman, Oregon Short Line, Pocatello, Idaho. G. G. Macina, Chicago, Milwaukee & St. Paul, Chicago, was re-elected secretary-treasurer. Three new members were elected to the executive committee, which now consists of Chairman J. T. Jones, tool foreman, New York Central, Collinwood, Ohio; C. A. Shaffer, general supervisor of shop machinery and tools, Illinois Central, Chicago; J. T. Sumner, tool foreman, Michigan Central, St. Thomas, Ont.; W. J. Hynes, tool foreman, Missouri Pacific, Little Rock, Ark.; and G. F. Harney, tool foreman, New York, New Haven & Hartford, Readville, Mass.

Five Passengers Killed in C. & N. W. Wreck

Five persons were killed and fifty were injured when a suburban train on the Chicago & North Western ran into the rear of a through train at 7:05 p. m. on Monday, September 6, at Clybourn Junction, three miles from the terminal in Chicago. The first train, which was being operated as the third section of Train 508 from Elroy, Wis., was made up at Harvard, Ill., to take the excess passenger traffic originating at that point, and consisted of wooden coaches. The second train was a suburban train, No. 734, from Barrington, Ill. The first train, consisting of three baggage cars, eight day coaches and one parlor car had stopped at Clybourn Junction when the second train over-ran the signals and struck the rear of the first train, causing the rear coach to telescope the preceding coach about one-third of a car length.

The dimming of the headlight of No. 734 when a northbound train approached, caused a momentary darkness, preventing the engineman from seeing the train standing at the station. This engineman had been in railroad service for 20 years, 17 of which have been on the Chicago & North Western with a record clear of any serious accidents. He disappeared, and after a few hours was located in a dazed condition in a nearby hospital. A statement was issued by the railroad company on Tuesday to the effect that the engineman had run past caution and stop signals set against him.

Interchange Inspectors' Annual Meeting

The Chief Interchange Inspectors and Car Foremen's Association will hold its twenty-fifth annual meeting at the Hotel Sherman, Chicago, on September 21, 22 and 23. W. P. Elliott, president of the association, general foreman of the Terminal Railroad Association of St. Louis; R. H. Aishton, president of the American Railway Association; Col. B. W. Dunn, chief inspector, bureau of explosives; and Joe Marshall, special representative of the American Railway Association, will address the meeting on the first day.

W. T. Westall, assistant district master car builder on the New York Central, will present a paper on the subject, "Handling Wheels and Axles at Wheel Shops." "The Trouble of the Small Interchange Points and the Remedy" will be presented by John Rauscher, chief interchange inspector, Cincinnati, Ohio. C. C. Hennessy (C. C. C. & St. L.) will speak on "The Method of Preparing A. R. A. Billing Repair Cards and Record of Repairs Simultaneously at the Car." "The Progressive Rebuilding of House Cars" will be discussed by C. M. Hitch, district master carbuilder on the Baltimore & Ohio.

The remaining two days of the convention will be occupied by a discussion of A. R. A. Rules of Interchange; consideration of the subject "Cars Condemned for Transfer at Large Terminals and Methods Used to Get Cars Through by Repairing Without the Necessity of Transferring," led by C. J. Nelson, chief interchange inspector, Chicago; a report of the question box committee and election of officers.

Telegraph and Telephone Section

The Telegraph and Telephone section, A. R. A., meets, as heretofore announced, at Swampscott, Mass., on Tuesday, Wednesday and Thursday, September 21, 22 and 23.

The principal items of business for Tuesday morning are the report of Committee No. 1, outside plant; and subcommittee A, construction of pole lines, wires and cables.

The program for Tuesday afternoon calls for the reports of subcommittee B, C, D, E and F; reports of committee No. 2, inside plant, and of subcommittee G.

Wednesday morning: Continuation of subcommittee G; subcommittees H and J.

Wednesday afternoon: Subcommittee K; paper by J. O. Carr on the use of printing telegraphs in railroad operation; report of committee No. 3, protection against electrolysis; report of committee No. 4, electrical protection.

Thursday forenoon: reports of committee No. 5, communication development; No. 6, message traffic; No. 7, inductive interference and No. 10, education and training of employees.

Thursday afternoon: Report of committee No. 11, communication and transmission; and No. 12, radio and wire carriers' systems. Report of committee on nominations, followed by election of officers.

Flour Carried without Tearing Bags

The "key-sack loading plan" for flour is the subject of an article in the Rock Island Magazine for September by B. R. Beall of the claim department of the Rock Island road, describing how he, with the co-operation of prominent flouring mills, has devised a scheme for packing paper and cloth bags of flour in freight cars so as to minimize damage to the sacks; and he says that in a record of 3,500 cars of flour loaded at points on the Rock Island road, the total loss from damage to bags is shown to have averaged only ten cents a car, as compared with $3.50 a car under former conditions.

The sacks are piled in such a way that the mass does not lean against the side of the car. The "key-sack" is one of a row laid along the floor, at each side, lengthwise, so that the first row of bags lying crosswise rests partly on a key sack and partly on the floor; this is one-half of a course; another row of key sacks, supporting the farther end of the next transverse row of bags, makes, with the first half, a pile in which the bags lean toward the center. Thus a pile eight or ten sacks in height remains stable without side support.

Where necessary to protect bags from nails or any rough surface, excelsior is used; and the excelsior, being chemically treated, is said to be a disinfectant and also a useful absorbent of water.

The plan also includes the use of a paper cover to guard against damage from a leaky roof, the paper extending not only over the top of a heap of bags but also down the sides. The doorway space of a car is fully utilized, the bags being so arranged that no grain-door or other special boarding is needed. Some of the large mills that have adopted this plan, show damage records for a series of months of as low as 3⅓ cents a car.

Canadian Roads Prosper

For the seven months of this year and ending July 31 the net earnings of the Canadian National increased by $11,869,711, or nearly 210 per cent over the same period last year. This statement also shows the highest gross earnings for any seven-month period since consolidated system figures were set up in June, 1922, and the highest gross and net for any July during the five years.

For the first seven-month period ending July 31 in each year, net earnings and operating ratios were as follows:

	Net Earnings	Operating Ratio
1922	*$2,148,229	101.78
1923	3,070,146	97.75
1924	3,214,681	97.62
1925	5,667,287	95.50
1926	17,536,998	87.78

* Operating deficit for first seven months of 1922.

For the seven months ending July 31, 1926, the gross earnings were $143,516,794, as against $125,914,357 for the similar period of 1925, an increase of $17,602,437, or 13.98 per cent. Operating expenses in the 1926 period were $125,979,796.01, as compared with $120,247,070.26 in the first seven months of 1925. Net earnings for the first seven months of 1926 were $17,536,997.99, as against $5,667,286.74 for the 1925 period, an increase of $11,869,711.25, or 209.44 per cent.

The summary for the month of July last shows gross earnings of $22,527,786, as compared with $20,370,614 in July, 1925, an increase of $2,157,172, or 10.59 per cent. Operating expenses in July, 1926, were $19,847,448.53, as against $18,445,673.09 in the corresponding month of 1925, an increase of $1,401,775.44, or 7.60 per cent.

Net earnings in July, 1926, totalled $2,680,337.47, compared with net earnings of $1,924,940.91 in July, 1925, an increase of $755,396.56 or 39.24 per cent. The operating ratio in July, 1926, was 88.10 per cent, as compared with 99.55 per cent in July, 1925.

The gross earnings of the Canadian Pacific for the first seven months of this year exceeded $100,000,000 for the second time and are second only to the seven-month period of 1920.

An increase of over half a million dollars in net for the month of July made an unbroken record of monthly gains of thirteen months. The gain recorded last month was the smallest since November of last year. As is usual, July was the biggest month of the year to date, both as regards gross and net earnings.

The following tables show the gross earnings, working expenses and net profits for the month of July and for the first seven months:

July	1926	1925
Gross	$16,598,421	$15,188,048
Operating expenses	12,677,285	11,799,172
Net	3,921,135	3,388,875
Seven months	1926	1925
Gross	$101,826,207	$90,343,867
Operating expenses	83,948,384	79,157,346
Net	17,877,823	11,186,521

Revenues and Expenses for July and Seven Months

Class I railroads in July had a net railway operating income of $116,895,311, which was at an annual rate of 5.62 per cent on their property investment, according to reports compiled by the Bureau of Railway Economics. In July last year, their net railway operating income was $99,668,613, or 4.90 per cent on their property investment. Operating revenues for the month amounted to $556,514,938, compared with $522,484,181 in July last year, or an increase of 6.5 per cent. Operating expenses totaled $395,293,865, compared with $382,924,788 last year, or an increase of 3.2 per cent.

Class I railroads in July paid $34,669,495 in taxes, an increase of $3,921,389 or 12.8 per cent over the same month in 1925. This brought the total tax bill of the Class I railroads for the first seven months this year to $217,128,466, an increase of $17,470,359 or 8.8 per cent above that of the corresponding period last year.

Fifteen Class I railroads operated at a loss in July this year of which five were in the Eastern district, and ten in the Western district.

For the first seven months in 1926 Class I railroads had a net railway operating income amounting to $611,853,632, which was at the annual rate of return of 5.06 per cent on their property investment. During the corresponding period last year their net railway operating income amounted to $539,184,046 or 4.56 per cent on their property investment.

Operating revenues for the first seven months amounted to $3,584,739,917, compared with $3,418,506,499 during the corresponding period last year, or an increase of 4.9 per cent. Operating expenses totaled $2,694,801,738, compared with $2,622,298,154 last year, or an increase of 2.8 per cent.

The net railway operating income for the Class I railroads in the Eastern district for the first seven months was $323,252,948, which was at the annual rate of 5.72 per cent. For the same period last year their net was $288,057,469, or 5.21 per cent. Operating revenues for the first seven months totaled $1,807,777,608, an increase of 4.9 per cent, while operating expenses totaled $1,354,498,762, an increase of 3.0 per cent.

Class I railroads in the Eastern district for July had a net railway operating income of $59,109,286, compared with $53,966,411 in July last year.

Class I railroads in the Southern district during the first seven months had a net railway operating income of $92,539,645, which was at the annual rate of 5.77 per cent. For the same period last year, the net railway operating income amounted to $87,444,618, which was at the annual rate of return of 5.71 per cent. Operating revenues of the Class I railroads in the Southern district for the seven months totaled $510,795,213, an increase of 7.9 per cent over the same period the year before, while operating expenses totaled $378,168,237, an increase of 7.4 per cent.

The net railway operating income of the Class I railroads in the Southern district in July amounted to $12,975,163 while in the same month last year it was $12,103,937.

Reports from the Class I railroads in the Western district complete except for the Chicago, Peoria & St. Louis for the first seven months showed a net railway operating income of $196,061,039, which was at the annual rate of return of 4.04 per cent on their property investment. For the first seven months last year the railroads in that district had a net railway operating income of $163,681,959 which was at the annual rate of return of 3.43 per cent on their property investment. Operating revenues of the Class I railroads in the Western district for the first seven months amounted to $1,266,167,096, an increase of 3.6 per cent, while operating expenses totaled $962,134,739 an increase of seven-tenths of one per cent.

For July, the net railway operating income of the Class I railroads in the Western district amounted to $44,810,862. The net railway operating income of the same roads in July last year totaled $33,598,265.

The summary follows:

CLASS I ROADS—UNITED STATES

	1926	1925
Month of July		
Total operating revenues	$556,514,938	$522,484,181
Total operating expenses	395,293,865	382,924,788
Taxes	34,669,495	30,748,106
Net railway operating income	116,895,311	99,668,613
Operating ratios	71.03	73.29
Rate of return on property investment	5.62%	4.90%
Seven months ended July 31		
Total operating revenues	$3,584,739,917	$3,418,506,499
Total operating expenses	2,694,801,738	2,622,298,154
Taxes	217,128,466	199,658,107
Net railway operating income	611,853,632	539,184,046
Operating ratios	75.17	76.71
Rate of return on property investment	5.06%	4.56%

H. E. Byram, receiver, in an address before a meeting of employees of the Chicago, Milwaukee & St. Paul, at Milwaukee, Wis., on August 23, commended the employees for the response they had made in the last 18 months to the demand for greater economy and increased efficiency. During this period the net tons per train increased from 511 to 680, or approximately 33 per cent, the gross tons per train increased from 1196 to 1523 or 27.3 per cent, and the average load per car from 20.67 tons to 26.35 tons or 22.7 per cent. The consumption of fuel per thousand gross ton miles decreased from 204.2 lb. to 171.6 lb. or 16 per cent.

Traffic News

The Louisiana Railway & Navigation Co., in conjunction with the Missouri-Kansas-Texas, has established package car service between New Orleans, La., and Dallas, Tex. The car leaves New Orleans daily at 10 p. m. and arrives at Dallas at 5 a. m. the third morning.

N. Y. C. at New York State Fair

The exhibit of the New York Central at the New York State Fair in Syracuse,—August 30 to September 4—which is a regular annual feature of the fair, consists this year of seven freight cars; two refrigerators, to illustrate proper and improper methods of handling perishable freight; three box cars exhibiting the most approved practices in loading, marking and bracing heavy freight, one of these cars containing exhibits for a lecture dealing with every phase of damage prevention; and two express cars illustrating the best ways of marking and packing packages, and the practice of the American Railway Express Company in handling perishable freight.

Pullman Company Asks that Rate Complaint Be Dismissed

Attorneys for the Pullman Company have filed with the Interstate Commerce Commission a statement of exceptions to the proposed report by Examiner J. B. Keeler, recently made public, which recommended that the commission should not order a reduction in Pullman rates pending the completion of the valuation of the company's property but that the proceeding before the commission, on complaints filed by organizations of commercial travelers, be held open pending the completion of the valuation.

Asserting that as the record as made establishes that the rates are not unjust or unreasonable and that the purposes of the investigation have been fully served, they ask that the proceeding be discontinued. They also object to the assumption of the examiner that the company's book investment figures may furnish a proper rate base on which to determine a fair return, stating that the proper and only permissible rate base is the value of the property and that this is substantially in excess of the book investment.

Motor Transport News

New Haven to Use Motor Trucks in New York Freight Service

With the eventual reduction in its downtown New York East river freight car floating in mind, the New York, New Haven & Hartford has arranged a contract with the United States Trucking Corporation to have certain classes of freight hauled by motor truck from its Harlem terminal to a "theoretical" delivery station at Fifty-ninth street, New York.

The trucks will to the extent to which use is made of them replace car float service now in use between the Harlem river terminal and East river piers and will speed up freight delivery, since the difficulties of taking the car floats through Hell Gate will be obviated.

Under the new arrangement, the New York, New Haven & Hartford will pay freight charges from its terminal at 133rd street and Harlem river to Fifty-ninth street. Charges from this point on will be the same to the consignee as the rates charged by trucking companies from the East river piers.

The proposed reduction in car floating and pier facilities will take place gradually, since the trucking corporation for the present will carry only one or two classes of freight, which include newsprint and brass. A large amount of freight will for the present still be floated down the East river. As the new plan is developed, the car float service will be lessened, and more classes of freight will be moved to downtown New York by motor truck.

Commission and Court News

Interstate Commerce Commission

The commission has issued a decision finding justified tariffs published by the transcontinental railroads, which had been suspended, proposing to exclude the Salt Lake & Utah from participation as an intermediate carrier in domestic and export traffic from eastern points to points in the mountain-Pacific states.

State Commissions

The Public Service Commission of New York announces that 13 additional projects for the elimination of grade crossings have been abandoned, for the present, because of the provision of the law forbidding action where the prospective financial burden on a city, town or village is beyond certain specified limits. These abandoned projects are on the New York, Ontario & Western; the Boston & Albany; the New York Central; the Lackawanna; the Lehigh Valley; the Ulster & Delaware; and the Buffalo, Rochester & Pittsburgh. In each case opportunity was given to submit the proposition to the voters but the authorities declined to do so. It also appeared in each case that the county would not aid the city or town.

Personnel of Commissions

Gilbert C. Whitney, for the last six years assistant engineer in the signal department of the Brooklyn-Manhattan Transit Corporation, has been appointed signal engineer of the New York (State) Transit Commission, New York City. Mr. Whitney was born at North Adams, Mass., April 9, 1883, and has had extensive experience with the General Electric Company, the General Railway Signal Company, the New York Central and the Interborough Rapid Transit Company.

Court News

Assumption of Risk of Fall of Stack of Freight

The Nebraska Supreme Court holds that the mere fact that a stack of freight fell, resulting in an injury to a railroad employee, is not of itself evidence of negligence of the railroad or of a co-employee. And where it is such an employee's duty to store and pack freight in stacks, and restore such freight as may become disarranged in the course of the business, the risk of injuries arising from such placement and replacement is one of the risks assumed by such employee.—La Ferry v. C. B. & Q. (Neb.) 206 N. W. 737.

Obligation to Relieve Railroad of Claims Due to Obstruction of Spur Track

The Kentucky Court of Appeals holds that the construction of a spur track for a shipper which the railroad was not obliged to make, was ample consideration for the shipper's obligation to keep the railroad harmless from any claims due to the shipper's failure to keep the track clear, and the railroad could recover from the shipper damages recovered from the railroad for injuries to its employees caused by a push car (placed too near the tracks by the shipper) colliding with its cars.—John B. Gorman Coal Co. v. L. & N. (Ky.) 281 S. W. 487.

Crossing Signs Obscured by Foliage

In the absence of a statute requiring or permitting a railroad company to go outside of its right of way and cut down trees and shrubs the Michigan Supreme Court holds, in an action for injuries sustained in a crossing accident occurring in Indiana, that the fact that shrubs, etc., on private lands and the public highway tended to obscure the view of a crossing sign could not be charged as negligence against the railroad.

Running 55 miles an hour in the country, where the track crossed the highway at right angles, was held not negligence.—Mulvaney v. N. Y. C., 233 Mich 350, 206 N. W. 536.

Foreign Railway News

Austrian Railways Have Deficit

The Austrian Federal Railways operated at a deficit of $3,500,000 for the first six months, according to dispatches from Vienna. Automobile and air line competition is blamed for a considerable part of this total and government control over this competition has been suggested as a solution.

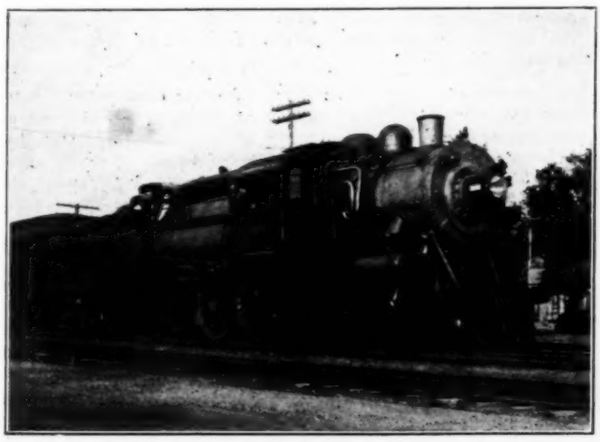
Freight Traffic Decline Causes Swiss Railway Revenues to Drop in 1925

Revenues of the Swiss railways were less in 1925 than in 1924, declining chiefly because of less freight traffic and the retirement of steam locomotives following electrification, according to Commerce Reports. Despite the adverse factors, however, the railroads were able to balance their accounts for the third time since the World War, showing a credit balance of 1,480,000 francs and reducing a deficit incurred during the war to 190,400,000 francs.

Approximately 100,800,000 passengers or 5,300,000 more than 1924, were carried last year by the Swiss railways. The increase in passenger traffic is laid to increased tourist travel. Receipts from this source were about 140,000,000 francs, 7,000,000 more than 1924 and the highest figure attained in 20 years. Freight revenue, however, diminished by 26,000,000 francs, as compared to 1924, due largely to a reduction in rates, to less long haul traffic from north to south and from east to west, and to the increased use of motor trucks. An increase in operating expenses was shown in 1925, the total operating expenses being 276,000,000 francs or 4,000,000 francs more than the preceding year. Coal consumption in 1925 was 5,000,000 francs under that in 1924, due to a decrease in coal prices and the gradual replacement of steam by electric traction. An important part of the total operating expenses was the writing off of 155 steam locomotives, which were in addition to 73 similarly disposed of in 1924.

HOMING PIGEONS to the number of 42,000 are said to have been carried out of London one night recently over the London & North Eastern. The birds, occupying seven cars, were sent by bird fanciers to distant points to be liberated the next day.

FOUR I's ARE RESPONSIBLE for many automobile accidents at highway crossings; inattention, inexperience, ignorance and intoxication. This is the salient point in a circular which has been distributed by the Northern Pacific in connection with its annual campaign to induce people to Cross Crossings Cautiously.



A D. L. & W. Suburban Train

Equipment and Supplies

Freight Cars

THE PALACE POULTRY CAR COMPANY is inquiring for 200 all-steel live poultry cars.

THE CHICAGO GREAT WESTERN has ordered 300 box cars and 100 automobile cars from the Pullman Car & Manufacturing Corp.

THE SINCLAIR REFINING COMPANY has ordered 16 special type coke cars from the Koppel Industrial Car & Equipment Co. Inquiry for this equipment was reported in the *Railway Age* of September 4.

Passenger Cars

THE CHICAGO & NORTH WESTERN is inquiring for four dining cars.

THE ERIE has ordered 26 steel passenger car frames from the Pressed Steel Car Company.

THE SOUTHERN PACIFIC has ordered 11 dining cars from the Pullman Car & Manufacturing Corp.

Iron and Steel

THE TEXAS & PACIFIC is inquiring for 18,000 tons of rails.

THE GULF COAST LINES are inquiring for 12,000 tons of rails.

THE NORFOLK & WESTERN is inquiring for 700 tons of structural steel for miscellaneous bridge work.

THE SOUTHERN PACIFIC has divided an order for 23,000 tons of rails between the Bethlehem Steel Corporation and the United States Steel Corporation.

THE ATCHISON, TOPEKA & SANTA FE has ordered 120 tons of structural steel for a powerhouse at Bakersfield, Cal., from the Moore Dry Dock Company.

Signaling

THE SEABOARD AIR LINE has ordered from the Union Switch & Signal Company an electro-mechanical interlocking for Apex, N. C.

THE MISSOURI PACIFIC has ordered from the Union Switch & Signal Company, electro-mechanical apparatus for the interlocking plant at Dupo, Ill.

THE CHICAGO & ALTON has ordered from the General Railway Signal Company, eight semaphore signals, 14 relays and other apparatus for use at Bloomington, Ill.

THE PENNSYLVANIA has ordered from the Union Switch & Signal Company electro-mechanical equipment for additions to interlockings at Richmond, Ind., Martins Run, Pa., and Pinnway, Pa.

THE JACKSONVILLE TERMINAL COMPANY, Jacksonville, Fla., has ordered from the Union Switch & Signal Company, material for extensive additions to its electro-mechanical interlocking at Enterprise street.

Miscellaneous

THE CONSOLIDATED RAILROADS OF CUBA have ordered from the International Standard Electric Corporation, material for telephone train dispatching sufficient to establish this system on over 500 miles of line. The order includes apparatus for 16 dispatchers' offices and 263 way stations.

Supply Trade News

The Oakley Chemical Company, New York City, has changed its name to **Oakite Products, Inc.**

The Kuhlman Electric Company, Bay City, Mich., has opened a direct factory branch office at Atlanta, Ga., in charge of **Ernest K. Higginbottom.**

Walter Hallen, with offices at 30 Church street, New York, has been appointed representative in that territory of the **Wooding Forge & Tool Company,** Verona, Pa.

The **Logan Iron & Steel Co.,** Philadelphia, has appointed **J. T. Stephenson,** who has headquarters in the Munsey building at Washington, D. C., as its selling agent for the territory from Baltimore, Md., south to Atlanta, Ga., and Wilmington, N. C.

Charles C. Phelps, 473 Getty avenue, Paterson, N. J., has been appointed to handle the Marley superheater in New York City and Northern New Jersey. This superheater is made by the **Power Plant Equipment Company,** Kansas City, Mo., and is especially designed for use with horizontal return tubular boilers and other boilers of the fire tube type.

The North American Car Corporation, Chicago, has acquired control of the **Palace Poultry Car Company,** Chicago. Officers of the new company are: President, **Erwin R. Brigham,** vice-president of the North American Car Corporation; vice-president and general manager, **I. V. Edgerton,** vice-president and general manager of the Palace Poultry Car Company; and secretary-treasurer, **N. M. Stott,** assistant secretary of the North American Car Corporation.

C. W. Sullivan has been appointed western representative of **Leslie Company,** with headquarters at 565 West Washington Boulevard, Chicago, succeeding **J. J. Cizek,** who has been appointed vice-president, with headquarters at Lyndhurst, N. J. Mr. Sullivan was educated in the public schools at Roaring Spring, Pa., and entered the railroad service in the mechanical department of the Pennsylvania at Altoona. He later was employed by the Chicago, Rock Island & Pacific from 1910 to 1916 in the testing laboratory at 47th street, Chicago. For nearly ten years, from March 1, 1916, Mr. Sullivan was connected with the Garlock Packing Company, as a railroad representative out of its Chicago branch.

Obituary

William C. Bergman, president of the Parsons Company, Newton, Iowa, died on August 23.

Harry Keith Mask, assistant to the vice-president of the Nathan Manufacturing Company, New York, and at one time assistant road foreman of the Maryland division of the Pennsylvania, died at the home of his sister in Wilmington, Del., on August 31, 1926. Mr. Mask was born in Cecil county, Maryland, but spent a greater part of his life in Wilmington until, 20 years ago, he moved to New York.

Trade Publications

UNIT LOADING OF FREIGHT.—The Acme Steel Company, Chicago, has issued an interesting folder entitled Acme "Unit-Load," which describes the advantages of strapping carload commodities into units when loaded into cars. Besides the list of commodities upon which strapping can be applied, the folder illustrates the method of application and compares the cost of strapping with wood blocking.

THE WESTERN RAILWAY CLUB will meet at the Hotel Sherman, Chicago, on September 20, on which occasion Col. W. G. Edens, vice-president of the Central Trust Company, Chicago, will deliver an address.

Railway Construction

BALTIMORE & OHIO.—A contract has been awarded to the Vang Construction Company, Cumberland, Md., for grading, drainage and concrete arch work in connection with the extension of the Rossford yard near Toledo, Ohio. When authority is granted for the entire project, it will involve a total expenditure of approximately $1,000,000.

BOSTON & MAINE.—A contract has been awarded to the American Bridge Company for an 800-ton steel bridge at Somerville, Mass.

BOSTON & MAINE.—This company will extend and modernize its yard facilities at White River Junction, Vt., including the construction of a classification yard with more than double the present trackage. An expenditure of approximately $600,000 is involved. In addition the company plans a new passenger station for White River Junction. The new yard will be of the flat type, with a capacity of 659 cars, together with a 62-car repair yard. In connection with these improved facilities, the road is planning also to build longer sidings at various points between White River Junction and Concord.

CHESAPEAKE & OHIO.—Bids were closed on September 4, for the construction of an extension from Waverly, Ohio, to Columbus.

CHICAGO, MILWAUKEE & ST. PAUL.—Bids are being received until September 15 for the erection of a freight and passenger station at Waukon, Ia., to cost approximately $10,000.

GRAND TRUNK WESTERN.—A contract for the grade separation project at Kedzie avenue and Forty-ninth street, Chicago, has been awarded to the Hamer, Paskins Company, Chicago. This work, involving an expenditure of $700,000, will carry eight tracks over the street and includes the construction of abutments and footings for five more. Besides three tracks of the Grand Trunk, the contractor will raise tracks of the Indiana Harbor Belt and Chicago River & Indiana at the same place.

FLORIDA EAST COAST.—Bids will close on September 20, for the construction of a water station at New Smyrna, Fla.

MERIDIAN & BIGBEE RIVER.—The Interstate Commerce Commission has authorized this company to build a line from Meridian, Miss., to Myrtlewood, Ala., about 50 miles.

MISSOURI PACIFIC.—Bids were closed on September 11, for the construction of a one-story brick and steel planing mill at Osawatomie, Kan., with dimensions of 125 ft. by 50 ft.

NORTHERN PACIFIC.—A contract has been awarded to E. J. Dunnigan, St. Paul, Minn., for the construction of trackage, freight facilities and a fruit warehouse at Spokane, Wash., estimated to cost $400,000. A 2-story fruit warehouse will have dimensions of 60 ft. by 130 ft.

PENNSYLVANIA.—A contract has been awarded to A. Guthrie & Co., Chicago, for the construction of a yard at Grogan, near Columbus, Ohio.

ST. LOUIS-SAN FRANCISCO.—The Interstate Commerce Commission has authorized this company to construct a line from a connection with its Aberdeen branch at Aberdeen, Miss., southeasterly to a connection with the northern terminus of the Muscle Shoals, Birmingham & Pensacola at Kimbrough, Ala. (of which the Frisco recently acquired control), a distance of 152 miles; estimated cost, $7,674,195.

A JOINT MEETING of the Central Claim conference, the Southeastern Claim conference, and the Southwestern Claim conference of the carriers, with the Memphis Chamber of Commerce, the Traffic Club of Memphis, the Memphis Freight Bureau and the Southern Hardwood Traffic Association will be held on October 15, at Memphis, Tenn. The purpose of the meeting is to discuss ways and means for improving freight transportation with a view of reducing and keeping at the minimum, loss and damage as an outcome of improper services.

Railway Financial News

ASPHALT BELT RAILWAY COMPANY.—*Operation of Line.*—The Interstate Commerce Commission has issued a certificate authorizing this company, all the stock of which is owned by the New Orleans, Texas & Mexico which also controls the San Antonio, Uvalde & Gulf and which in turn is a Missouri Pacific subsidiary, to operate in interstate commerce its line of railroad extending from a point near Pulliam on the San Antonio, Uvalde & Gulf northwesterly about 12 miles to White and thence westerly about 6 miles to Dabney. The railroad in question was built in the latter part of 1923 principally to serve the mines of the Texas Rock Asphalt Company at Dabney and the asphalt mines of R. L. White at White and to provide a connection between those mines and the San Antonio, Uvalde & Gulf. About half of the line was built by people interested in the San Antonio, Uvalde & Gulf, assisted by funds supplied by the carrier. The other half was built by the Texas Rock Asphalt Company under an agreement whereby this half would pass to the owners of the other half. The building of the railroad was involved in litigation and it was also shown in the record that there was an effort at one time on the part of the Galveston, Harrisburg & San Antonio, a Southern Pacific subsidiary, to serve the mines in question which was not successful.

CANADIAN NATIONAL.—*Grand Trunk Debenture Stock Litigation Ended.*—Official announcement was made in London on August 31 that the dispute between the holders of Grand Trunk Pacific 4 per cent debenture stock and the Canadian National regarding the payment of interest had been settled. Under the terms of settlement the Canadian National is to create and issue debenture stock as from July 1, 1926, carrying annual interest of 2 per cent, the first interest payment to be made on or about January 1, 1927. Provision is made for a sinking fund equal to 2 per cent of the total amount of stock issued, whether still outstanding or not, plus a sum equal to the interest that would have been payable on any stock previously redeemed out of the sinking fund, had such stock been redeemed.

The amount set aside each year shall, for the first ten years, from July 1, 1927, be applied to the redemption of stock by purchase—by tender only—at a price including a half-year's interest, of not less than 60 and not more than 100. After that time the stock shall be redeemed by drawings at par only. Stockholders have been invited to send in sealed tenders of their stock for redemption. Drawings are set for the last week in May, 1927.

It is understood that stock amount to £3,000,000 held by the Canadian Government will not participate in the new plan.

This dispute dates back to the taking over of the Grand Trunk by the Canadian Government, only one interest payment having been made to the debenture stockholders. It was stated that the non-payment of interest had resulted in considerable ill-feeling among investors in England which had adversely affected the ease with which money could be raised by the Canadian interests in London.

CENTRAL OF NEW JERSEY.—*Equipment Trust Certificates.*—The $2,670,000 4½ per cent equipment trust certificates recently authorized by the Interstate Commerce Commission to be sold at not less than 99.517 to Blair & Co. are to be used to assist in the purchase of 35 passenger train cars and 1,100 freight train cars having a total estimated cost of $3,345,638. These equipment trust certificates were sold after competitive bidding. The carrier, in its application, stated that invitations for bids were sent to 13 banking houses and bids were received from 9.

CHESAPEAKE & OHIO.—*Expiration of Conversion Privilege.*—The Board of Directors, on August 30, issued a notice calling attention to the expiration on September 1 of the period for conversion of the 5 per cent convertible 30-year secured gold bonds, due April 1, 1946. The terms under which these bonds were issued provide for conversion to common stock up to 30 days prior to redemption date. The Board of Directors of the company designated October 1 as the date for redemption of all these bonds outstanding, at a premium of 5 per cent, plus principal and accrued interest. After that date interest will cease to accrue on these bonds.

CHICAGO, ROCK ISLAND & PACIFIC.—*Abandonment.*—The Interstate Commerce Commission has made public a proposed report by Examiner J. C. Freeland recommending a finding by the commission that public convenience and necessity permit the abandonment by this company and the Choctaw, Oklahoma & Gulf of a branch line from Tecumseh to Asher, Okla., 25 miles.

DENVER & INTERURBAN.—*Receivership.*—This company, a subsidiary of the Colorado & Southern, was placed in the hands of a receiver on September 2, by Judge Robert E. Lewis of the United States circuit court of appeals. William H. Edmunds, general manager, was appointed receiver.

DENVER & SALT LAKE.—*Lease.*—This company has applied to the Interstate Commerce Commission for authority to acquire control of the Northwestern Terminal by lease.

GEORGIA & FLORIDA.—*Certificates.*—The receiver has applied to the Interstate Commerce Commission for authority to issue $271,900 of 6 per cent receiver's certificates and to guarantee an issue of $750,000 of 5 per cent equipment trust certificates.

Earnings.—John Skelton Williams, receiver, has recently made public a statement comparing the earnings and traffic of the 12 months ended June, 1926, with the calendar years, 1922 to 1925, indicating improvement in the property's earning power and drawing attention to the favorable industrial and agricultural conditions in the state of Georgia.

ILLINOIS CENTRAL.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority for an issue of $35,000,000 of 40-year 4¼ per cent bonds, to reimburse the treasury for expenditures for improvements and extensions, including the line of the Southern Illinois & Kentucky. The company has tentatively accepted an offer of 93.65 for the securities made by Kuhn, Loeb & Co.

Equipment Trust.—The Illinois Central has applied to the commission for authority for an issue of $4,665,000 of 4½ per cent equipment trust certificates, to be sold to Kuhn, Loeb & Co., at 98.43.

KANSAS CITY SOUTHERN.—*Intervention in Merger Proceedings Permitted.*—The Interstate Commerce Commission has issued orders permitting the Waco, Beaumont, Trinity & Sabine, R. C. Duff and the chamber of commerce of Trinity, Tex., to intervene in the proceedings on the application for authority to acquire control of the Missouri-Kansas-Texas and the St. Louis Southwestern.

KNOXVILLE & CAROLINA.—*Sale Postponed.*—Sale of this property as junk scheduled for September 1 was enjoined upon application of Stokely Brothers of Newport, Tenn., operators of a large cannery who desire to bid on the road as a going concern. The road will be readvertised for sale on September 20.

LONGVIEW, PORTLAND & NORTHERN.—*Application for Trackage Rights Refused.*—The Interstate Commerce Commission has denied an application of the Northern Pacific, the Great Northern and the Oregon-Washington Railroad & Navigation Company to operate under trackage rights over the Longview, Portland & Northern between Longview Junction, Wash., and Olequa, 21 miles. These carriers operate 5 passenger trains in each direction daily between Seattle, Wash., and Portland, Ore., and 1 passenger train daily between Centralia, Wash., and Portland, Ore., under a contract whereby the revenues and expenses of the trains are pooled. Between Olequa and Longview Junction the line of the Northern Pacific is used and the present purpose was to operate instead over the line of the Longview, Portland & Northern so as to provide through train service to the city of Longview. The major points in the commission's decision are given in this report as follows:

From the record it appears that the applicant proposes to divert certain trains from a well-seasoned, double-track trunk-line railroad, protected by automatic block signals and described as in first class condition, to a new single-track railroad without block signals and inferior in practically every respect to the railroad over which the trains now run. It is admitted that the new line is not as safe, or as desirable, for operation as the old line. The proposed operation would require considerable additional investment of capital and would result in increased cost of operation without a corresponding benefit, so far as appears, of increased revenues, and would thus tend to increase the cost of transportation to the traveling and shipping public. The proposed operation would give Longview direct trunk-line passenger service, which is now available at Kelso, just across the Cowlitz River, would result in Longview being shown in the time-tables of the trunk-line carriers, and might possibly make more effective an advertising campaign for the development of the city, al-

though this is not clearly shown. About the only other benefit would be the added convenience for passengers using the rerouted trains in going to and from Longview. For them the proposed operation would make available better passenger station facilities, shorten by approximately one mile the distance to and from a railroad station, and remove the hazard of crossing a double-track railroad at grade. It would inconvenience passengers to and from Kelso using the trains through Longview in that they would have to cross the same railroad at grade and travel one mile further to and from a station.

LOUISIANA & PACIFIC.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon the operation of the line from De Ridder to Lake Charles, La., 43.4 miles, saying that operation over 42.3 miles of the line will be continued by the Lake Charles & Northern.

MISSOURI PACIFIC.—*Control of Marion & Eastern.*—The Interstate Commerce Commission has approved the acquisition by the Missouri Pacific of the control of the Marion & Eastern by purchase of the latter's capital stock. The Marion & Eastern operates a line from M. & E. Junction, Ill., to Paulton, with a branch line to Black Briar mine No. 2, including 10 miles of first main track and 3.7 miles of side track. It operates between M. & E. Junction and Marion, 1.5 miles, under trackage rights over the line of the Illinois Central and has acquired a right of way for 6 miles of additional main track, of which 3 have been graded and 3 partly graded. Connection with the Missouri Pacific is made at a point 1.45 miles east of Marion. The company's traffic is primarily coal. The Missouri Pacific itself proposed some time ago to construct a line to serve a portion of the territory reached by the Marion & Eastern but the latter secured an injunction against such construction on the ground that no certificate was issued by the Interstate Commerce Commission authorizing it. Later the Missouri Pacific entered into an arrangement to purchase the entire capital stock of the smaller carrier of the par amount of $50,000 for $190,000.

NEW ORLEANS & LOWER COAST.—*Purchase.*—Negotiations are under way for the purchase of this company by the Missouri Pacific, a contract having been entered into by the voting trustees of the bondholders of the New Orleans & Lower Coast for the purchase, pending approval by the Interstate Commerce Commission. An application will be filed within the next few days.

NEW YORK CENTRAL.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to acquire control of the Bailey Run, Sugar Creek & Athens, a line of 3.6 miles in Athens county, Ohio, serving various coal mines, by purchase of its outstanding capital stock for $200,000.

PERE MARQUETTE.—*Bonds.*—The Interstate Commerce Commission has authorized this company to procure authentication and delivery of not exceeding $2,868,000 first mortgage 5 per cent bonds, series A, to be held by the carrier until further order of the commission.

WOODWORTH & LOUISIANA CENTRAL.—*Abandonment.*—This company has been authorized to abandon its line extending from Woodworth, La., to Lamorie, 6 miles, all in the Parish of Rapides, La. The railroad was built to serve a lumber mill which has since ceased operations.

Average Price of Stocks and Bonds

	Sept. 7	Last Week	Last Year
Average price of 20 representative railway stocks	105.74	104.16	86.73
Average price of 20 representative railway bonds	98.31	97.92	91.18

Dividends Declared

Alabama & Vicksburg.—3 per cent, semi-annually, payable October 1 to holders of record September 8, applicable to period January 1 to June 30, 1926.

Chesapeake & Ohio.—Preferred A, 3½ per cent, payable January 1, 1927, to holders of record December 8.

Lehigh Valley.—Common, $0.87½, quarterly; preferred, $1.25, quarterly, both payable October 1 to holders of record September 11.

New York, Lackawanna & Western.—1¼ per cent, quarterly, payable October 1 to holders of record September 15.

Old Colony.—1¾ per cent, quarterly, payable October 1 to holders of record September 11.

Pere Marquette.—Common, 1½ per cent, quarterly; prior preference, 1¾ per cent, quarterly; five per cent preferred, 1¼ per cent, quarterly, all payable October 1 to holders of record September 15.

Vicksburg, Shreveport & Pacific.—Preferred, 2½ per cent, semi-annually; common, 2½ per cent; both payable October 1 to holders of record September 8, both dividends being applicable to period January 1 to June 30, 1926.

Railway Officers

Financial, Legal and Accounting

Vernon K. Foster, local and trial attorney for the Illinois Central, with headquarters at Chicago, has been appointed general attorney, with the same headquarters, to succeed **John G. Drennan,** retired. Mr. Foster will be replaced as local attorney by **Fred H. Montgomery.**

John G. Drennan, general attorney of the Illinois Central, with headquarters at Chicago, retired on September 2, under the company's pension plan. He was born on December 3, 1854, in Caldwell county, Ohio, was educated in the public schools, and was admitted to the bar in 1880. From that date until 1896, Mr. Drennan practiced law for six years as a member of the firms of Jones & Drennan at Taylorville, Ill., Drennan & Hogan and Palmer, Shutt & Drennan, Springfield, Ill. For 11 years he acted as local attorney of the Wabash at Taylorville, Ill., and for four years as general attorney for the Baltimore & Ohio Southwestern for Illinois. From 1879 to 1881, he was master of chancery of Christian county, Ill., and from 1880 to 1888, states attorney for the same county. From 1896 to 1898, he was corporation counsel for the city of Springfield, Ill., and he also acted as special attorney for the Chicago sanitary district and was a member of the Advisory Board of the Law Department, University of Illinois. In 1896, he was appointed local attorney of the Illinois Central, with headquarters at Chicago, and three years later was promoted to district attorney. He served as district attorney until January 1, 1924, when he was appointed general attorney, which position he held until his recent retirement.

Operating

G. W. Rose has been appointed assistant trainmaster of the Southern Pacific, with headquarters at Crescent Lake, Ore.

A. L. Johnson, acting general superintendent of the Denver & Salt Lake, with headquarters at Denver, Colo., has been appointed general superintendent, with the same headquarters.

F. A. Gideon, assistant general superintendent of the Newburgh & South Shore, with headquarters at Cleveland, O., has been appointed general superintendent, with the same headquarters.

A. J. Chester, superintendent of transportation of the Texas & Pacific, with headquarters at Dallas, Tex., has been promoted to superintendent of the Louisiana division, with headquarters at Alexandria, La., succeeding **J. McKay,** resigned. Mr. Chester will be succeeded by **B. C. James.**

Paul C. Bauer, assistant trainmaster on the Pennsylvania, with headquarters at Indianapolis, Ind., has been promoted to trainmaster at the same place. **C. H. Mitchell,** general yardmaster, with headquarters at Louisville, Ky., has been appointed acting assistant trainmaster, with the same headquarters.

William C. Baker, trainmaster of the Baltimore & Ohio, with headquarters at Connellsville, Pa., has been appointed assistant superintendent of the Baltimore division, with headquarters at Baltimore, Md. **W. E. Boyland,** assistant trainmaster at Cumberland, Md., has been promoted to trainmaster, with headquarters at Connellsville, Pa.

F. E. Yoakum, trainmaster on the Western division of the Southern Pacific, with headquarters at Oakland, Cal., has been promoted to assistant superintendent, with the same headquarters, succeeding **W. H. Norton,** retired. Mr. Yoakum will be replaced by **A. A. Lowe,** trainmaster, with headquarters at Sparks, Nev., who will be replaced by **G. H. Moore,**

trainmaster, with headquarters at Carlin, Nev. **S. H. Bray** has been appointed trainmaster, with headquarters at Carlin, to succeed Mr. Moore.

James P. Walker, who has been appointed general superintendent of the Atlantic Coast Line, with headquarters at Savannah, Ga., was born on April 27, 1883, at Overfield, W. Va. He received his education partly at public schools, and partly at Rockville Academy and Washington and Lee University. He entered railroad service in July, 1903, as a chainman with the Baltimore & Ohio, and subsequently served as a rodman, levelman and transitman with this company until April, 1906, when he entered the service of the Atlantic Coast Line as a transitman. From this time until April, 1923, Mr. Walker served as resident engineer, division engineer, assistant engineer, assistant superintendent and then superintendent at Charleston, S. C. On April 1, 1923, he was appointed superintendent of transportation, with headquarters at Jacksonville, Fla., which position he held until his recent appointment as general superintendent. Mr. Walker also served as terminal manager for the United States Railroad Administration.

John Cannon, who has been elected vice-president and general manager of the Missouri Pacific in charge of operation, with headquarters at St. Louis, Mo., was born on May 6, 1872, at Cairo, Ill. He entered railway service in 1886 as a laborer in the mechanical department of the Illinois Central at Cairo, Ill. Since that time he held various clerkships in the mechanical department until May 1, 1892. From that date to 1905, he was successively chief clerk to the assistant superintendent of the Chicago division, chief clerk to the superintendent of the Amboy and the St. Louis divisions, chief clerk to the general superintendent of transportation, assistant trainmaster of the St. Louis division, and chief clerk to the general manager. During 1905, he served as trainmaster on the Springfield and on the Chicago divisions. From 1905 until 1913, he was with the Missouri Pacific successively as superintendent at Coffeyville, Kan., Little Rock, Ark., DeSoto, Mo., and Poplar Bluff. Until November 1, 1915, he was superintendent of the Eastern division at Jefferson City, Mo. He was then transferred to the Eastern district as general superintendent, with headquarters at St. Louis, Mo., which position he held until May, 1917, when he was appointed superintendent of transportation. In January, 1919, he was promoted to general superintendent of transportation, and in March, 1920, to assistant general manager. He was again promoted to general manager in February, 1925, which position he held until his recent appointment as vice-president and general manager.

Traffic

J. E. McGinty has been appointed general agent of the Pacific Fruit Express, with headquarters at Chicago, Ill.

L. M. Kilburg has been appointed general agent on the Chicago & North Western, with headquarters at Spokane, Wash.

C. A. Maull, assistant general freight agent on the Atlantic Coast Line, with headquarters at Jacksonville, Fla., has been transferred to Orlando, Fla.

J. F. Baringer has been appointed general freight and passenger agent of the New Orleans & Lower Coast, with headquarters at New Orleans, La.

R. L. Lichty has been appointed district freight agent of the Gulf, Mobile & Northern, with headquarters at Jackson, Miss. **C. F. Groom** has been appointed commercial agent, with headquarters at Paducah, Ky.

J. L. Burnham, assistant general freight agent of the Northern Pacific, with headquarters at Seattle, Wash., has been appointed assistant general freight and passenger agent, with headquarters at Tacoma, Wash.

W. A. Kitteridge has been appointed division freight agent of the Canadian Pacific, the Minneapolis, St. Paul & Sault Ste. Marie, the Duluth, South Shore & Atlantic, and the Spokane International, with headquarters at Chicago.

John E. Propper has been appointed assistant general freight agent of the Erie, with headquarters at New York City, succeeding **William J. Mathey,** who has resigned to become manager of the traffic department of the American Newspaper Publishers' Association, with headquarters in the same city.

T. Thompson, secretary of the Western Passenger Association, with headquarters at Chicago, has been appointed chairman, with the same headquarters, to succeed Eben E. MacLeod, deceased. Mr. Thompson will be replaced by **G. J. Maguire,** who will continue his present duties as chief of the tariff bureau.

B. R. Harris, commercial agent of the Chicago Great Western, with headquarters at Des Moines, Iowa, has been appointed general agent in the freight department, with headquarters at Minneapolis, Minn., succeeding **L. J. Fitzpatrick.** Mr. Harris will be succeeded as commercial agent at Des Moines by **John B. Hoverson.**

A. P. Smirl, assistant traffic manager of the Texas & Pacific, with headquarters at New Orleans, La., has been transferred to take charge of the solicitation department, with headquarters at Dallas, Tex., and will be replaced by **C. W. Brosius,** general freight agent, with headquarters at New Orleans. **R. R. Hollinger,** assistant general freight agent, with headquarters at Dallas, Tex., has been promoted to succeed Mr. Brosius.

A. T. Weldon, traffic manager of the Atlantic region of the Canadian National, with headquarters at Moncton, N. B., has been appointed general traffic manager of the system with jurisdiction in respect to freight and passenger traffic, with headquarters at Montreal, Que. Mr. Weldon was born on March 6, 1876, at Dorchester, N. B., and entered railway service as a car checker in the local freight office of the Intercolonial (now a part of the Canadian National) at Moncton in 1890. In 1901 he was appointed chief clerk to the division freight agent at Halifax, N. S., and in 1907, became division freight agent at that point. From 1909 to 1914, he was general freight and passenger agent of the Black Diamond Steamship Line, and then became assistant general freight agent for the Canadian Government Railways at Moncton. In 1917 he was advanced to general freight agent, and in 1919, became assistant freight traffic manager of the Canadian National. In 1923 Mr. Weldon was appointed traffic manager of the Atlantic region, which position he was holding at the time of his recent appointment as general traffic manager of the system.

A. T. Weldon

Mechanical

G. G. Ritchie has been appointed chief fuel inspector of the Chesapeake & Ohio, with headquarters at Richmond, Va., succeeding **S. Hernaman,** retired.

Frank Roehr, master car repairer of the San Joaquin division of the Southern Pacific, with headquarters at Bakersfield, Cal., has been transferred to the Los Angeles division, with headquarters at Los Angeles, Cal., succeeding **T. H. Osborne,** transferred. Mr. Roehr will be replaced by **D. D. McClure.**

H. W. Reinhardt has been appointed master mechanic of the Missouri Pacific, with headquarters at Little Rock, Ark.,

to replace J. M. Whalen, transferred. The announcement of this appointment, which was published with a number of other changes in the mechanical department on the Missouri Pacific in the *Railway Age* of September 4, was garbled through a printer's error.

Engineering, Maintenance of Way and Signaling

W. O. Spencer, superintendent of the creosoting plant on the Southern Pacific, with headquarters at Wilmington, Cal., has been transferred to West Oakland, Cal., and will be succeeded by **E. J. Allen,** assistant superintendent of the creosoting plant, with headquarters at Wilmington.

Special

Thomas Thompson, secretary of the Western Passenger Association, Chicago, who has been appointed chairman to succeed **Eben E. MacLeod,** deceased, was born in Chicago in 1863, and received a high school education at the West Division High School. He began railway work as an office boy in the general freight department of the Chicago & North Western at Chicago in 1879, and in the next year was promoted to stenographer, a position he occupied for a year. He then served for six months as stenographer for the general freight agent of the Chicago, St. Paul, Minneapolis, & Omaha, and held various clerical positions with the latter road, the Chicago, North Western and the Chicago, Milwaukee & St. Paul, until February 9, 1885, when he was appointed secretary of the Western Passenger Association upon its organization. With the exception of one year, when he accepted a position with the credit department of a commercial organization, he has been continuously in railway service since 1879. Since 1885, and until his recent appointment, Mr. Thompson has served as secretary under seven different chairmen of the association.

Thomas Thompson

Obituary

Miss Emma S. Redel, assistant secretary of the Minneapolis & St. Louis, died at her home in Minneapolis, Minn., on September 4.

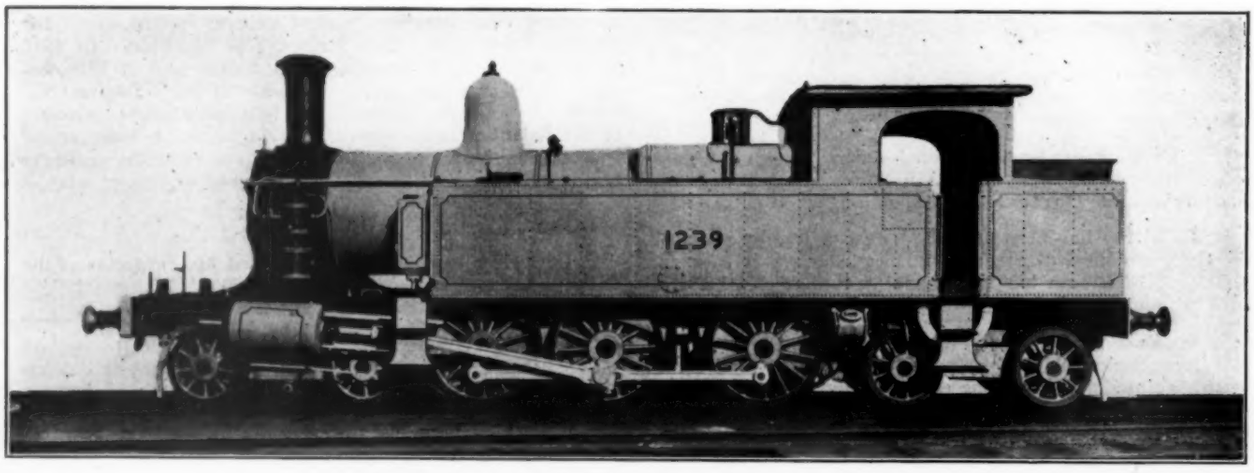
W. H. Fetner, chief mechanical officer of the Missouri Pacific, with headquarters at St. Louis, Mo., died at his home in that city on September 7.

James H. O'Brien, builder of the Yosemite Valley, from Merced, Cal., to El Portal, died on August 29, at San Francisco, Cal., after an illness of two years.

Oliver H. Hagerman, manager of the marine department of the Reading, with headquarters at Philadelphia, died of heart disease at his home in Elkins Park, Pa., on September 8.

James E. Callahan, superintendent of the International-Great Northern, with headquarters at Houston, Tex., died on August 31, in the Missouri Pacific Hospital at Palestine, Tex., following an operation for appendicitis.

William A. Nettleton, formerly superintendent of motive power of the Chicago, Rock Island & Pacific, who died during a trip abroad in London, Eng., on August 30, was born in October, 1863, at Hannibal, Mo. Mr. Nettleton attended Phillips Andover Academy and was graduated from Yale University in 1885. He entered railway service in the same year and served as rodman and levelman on the Kansas City, Ft. Scott & Memphis (now a part of the St. Louis-San Francisco). In 1886, he entered a student course with the Westinghouse Air Brake Company, and in the next year was appointed inspector of air brakes of the Kansas City, Ft. Scott & Memphis. After a further student course with the Union Bridge Company at New York, Mr. Nettleton was inspector for the Morison & Corthell Union Bridge Company, at Athens, Pa., and for C. A. Boller on the Thames river bridge at New London, Conn. From October, 1889, to May, 1892, he was engineer of tests of the Kansas City, Ft. Scott & Memphis and until August, 1893, superintendent of terminals of the Kansas City & Memphis Railway & Bridge Company, at Memphis, Tenn. For the next two years he served as assistant superintendent of motive power, and in 1895, was promoted to superintendent of motive power and machinery. In January, 1902, he entered the service of the Atchison, Topeka & Santa Fe, serving as assistant superintendent of motive power and consulting engineer until May, 1904, when he was made general superintendent of motive power of the St. Louis-San Francisco and the Chicago & Eastern Illinois. Mr. Nettleton was appointed general superintendent of motive power of the Chicago, Rock Island & Pacific, in March, 1908, which position he held until his retirement in 1911. He was a son of the late George H. Nettleton, who built the Kansas City, Ft. Scott & Memphis.



New South Wales Railways Suburban Passenger Locomotive

Cylinders, 18½ in. by 24; Driving wheels, 55 in.; Working pressure, 180 lb.; Tractive effort, 19,120 lb.; Water capacity, 1,580 imp. gal.; Coal, 2½ long tons.